

LAND RECLAMATION COMMISSION

STATE OF MISSOURI

P.O. BOX 176

JEFFERSON CITY, MISSOURI 65102

573-751-4041

Permit to Engage in Surface Mining

LAND RECLAMATION COMMISSION

ISSUES TO


HARBISON-WALKER REFRACTORIES

Pursuant to "The Land Reclamation Act," RSMo. 2001, and on conformity with the statements in the application, a permit is hereby granted to engage in surface mining of clay in the state of Missouri. The extent of the proposed mining operation(s) will be on 239.5 acres, more or less. The locations of the operation(s) under this permit is/are as follows: Renewal

See Attached List

This permit may be suspended or revoked upon violation of any or all of the conditions set forth in "The Land Reclamation Act," RSMo. 2001, or in such rules and regulations as are promulgated pursuant thereto by the Land Reclamation Commission.

IN WITNESS WHEREOF I have hereunto set my hand this 18th day of October 2004



DIRECTOR OF STAFF
Land Reclamation Commission

Permit No. 0146
Effective Date 10/18/2004
Expiration Date 07/31/2005

Company Name HARBISON-WALKER REFRACTORIES

Permit Number 0146

Expiration Date – 07/31/2005

County	Section	Township	Range	Acres Renewed	Acres New	Total Acres	Site/Stream Name	Site Number
Callaway	29	45N	10W	1	0	1	Keown*	0196
Montgomery	03	47N	05W	10	0	10	Zimmerman #1*	0861
Warren	13	46N	03W	7.5	0	7.5	Potthast*	0233
Montgomery	03, 34	47N, 48N	05W	40	0	40	Zimmerman Pit #5 & North	0230
Callaway	07	46N	09W	3	0	3	Craghead*	0195
Callaway	07	46N	09W	6	0	6	Wetherell #1 & #2*	0238
Maries	01	40N	07W	1	0	1	Stockton #1*	0218
Warren	06	46N	02W	8	0	8	Gerding #8*	0208
Callaway	32	47N	09W	8	0	8	K.M. Craghead #1A	0197
Lincoln	USS-1710	51N	01W	24	0	24	Tucker	0221
Lincoln	USS-1710	51N	01W	5	0	5	White*	0201
Warren	26	47N	01W	3	0	3	Martin #3*	0237
Warren	08	46N	02W	3	0	3	Meyer #8*	0236
Warren	08	46N	03W	3	0	3	Buxton #3 & #4*	0213
Warren	07	46N	02W	4	0	4	Hanke #11 & #13*	0206
Warren	12	46N	03W	4	0	4	August Gerding #8*	0216
Warren	33	47N	03W	14	0	14	Wildore Realty #3 & #4	0228
Gasconade	04	40N	06W	5	0	5	Charles Bunton #1	0212
Warren	07	47N	02W	9	0	9	Joseph Polston Property	0234
Warren	09	46N	02W	9	0	9	B. Meyer 3 & 4	0214
Montgomery	08	48N	05W	13	0	13	Weant	0193
Franklin	34	43N	04W	15	0	15	Sickendick	0231
Warren	20	46N	01W	4	0	4	Juren Pit 1	0199
Lincoln	USS-1710	51N	01W	14	0	14	Uptegrove Property	0224
Montgomery	06	47N	04W	5	0	5	Chicago-Retort Prop	0191
Gasconade	30	43N	05W	10	0	10	Farnberg Pit 1A	0194
Maries	32	40N	07W	4	0	4	Woodruff #1	0189
Osage	20, 17	44N	07W	4	0	4	A.C. David #1	0192
Gasconade	02	41N	06W	3	0	3	Hensley #6	0190
							*Sites permitted for reclamation only	



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION

RECEIVED

PERMIT RENEWAL FORM FOR INDUSTRIAL MINERAL MINES

AUG 18 2004

P.O. BOX 176
JEFFERSON CITY, MO 65102-0176

NAME OF CORPORATION, COMPANY, PARTNERSHIP OR INDIVIDUAL

Harbison-Walker Refractories Company

MISSOURI LAND
RECLAMATION COMMISSION

8/9/04

ADDRESS

1301 Westminster Avenue

CITY

Fulton

STATE

MO

ZIP CODE

65251

CONTACT PERSON

David Keller

TELEPHONE

573.642.8787 x 25

FEES: COMPLETE SECTION I OR SECTION II

Section I. Fees: Open pit operators and those mining more than five thousand (5,000) tons of sand and/or gravel:

1. To compute the site fee complete the columns and lines below:

SITE NAME OR NUMBER (add a separate sheet for additional sites)	Mark each month that the site will be operated during the permit year	For sites operated less than six (6) months per permit year pay \$150.00
		For sites operated six (6) months or more per permit year pay \$300.00
1.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
2.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
3.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
4.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
5.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
6.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
7.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
8.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
9.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
10.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$

TOTAL SITE FEE

\$ 4500

2. Acreage fee: \$5 X 239.5 number of acres bonded

\$ ~~1197.5~~

3. Annual permit fee:

\$ 500.00

4. Total Fee: Add totals from 1, 2, and 3

\$ 6197.50

NOTE: If Total Fee exceeds \$2,500.00 then pay only -----\$2,500.00

SECTION II. FEES: Sand and/or gravel operators mining less than five thousand (5,000) tons per year:

1. Annual Permit Fee-----\$ 300.00

SIGNATURE OF APPLICANT

TITLE

DATE

David Keller

Generalist

8/9/04

Appeared before me this 9 day of Aug, 2004. David Keller to me personally known, who executed the above as their free acts and deeds.

NOTARY PUBLIC EMBOSSEER SEAL

STATE

MO

COUNTY (OR CITY OF ST. LOUIS)

Audrain

SUBSCRIBED AND SWORN BEFORE ME, THIS

9th

DAY OF

Aug

2004

NOTARY PUBLIC SIGNATURE

MY COMMISSION EXPIRES

Anna Lee Martin
NOTARY PUBLIC NAME (TYPED OR PRINTED)

10-6-2004

Anna Lee Martin

RUBBER STAMP CLEAR AREA BELOW

ANNA LEE MARTIN
NOTARY PUBLIC - STATE OF MISSOURI
MY COMMISSION EXPIRES 10/6/2004
AUDRAIN COUNTY

FOR DEPARTMENT USE ONLY: APPROVED BY

DATE APPROVED

PERMIT NUMBER

EXPIRATION DATE

Anna Lee Martin

9-16-04

0146

7-31-05

MISSOURI DEPARTMENT OF NATURAL RESOURCES

LAND RECLAMATION COMMISSION

SITE INFORMATION FORM

RECEIVED
JAN 12 2008

P.O. BOX 176

JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER

A.C. David #1

MISSOURI LAND
RECLAMATION COMMISSION
SITE NUMBER

146

COMPANY NAME

Harbison-Walker Refractories Company

COUNTY

Osage

1/4 SECTION

NW 1/4 Sect. 20; SW 1/4 Sect. 17

SECTION

20 & 17

TOWNSHIP

44 N

RANGE

7 W

ACRES

4

RIVER OR STREAM NAME (FOR IN-STREAM ACRES)

MINERAL COMMODITY

Fire Clay

ESTIMATED TONS/YEAR (FOR GRAVEL SITES)

NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE)

Mr. Charles Salarano (Section 20)

ADDRESS

1281 Branch Street

CITY

Holts Summit

STATE

MO

ZIP CODE

65043

SOURCE OF RIGHT TO MINE (CHECK ONE):

☐ MINERAL DEED☐ LEASE☐ WARRANTY DEED☐ VERBAL AGREEMENT☐ OTHER (DESCRIBE):

DATE OF AGREEMENT

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE)

Harbison-Walker Refractories Company

ADDRESS

P.O. Box 430

CITY

Fulton

STATE

Missouri

ZIP CODE

65251

SOURCE OF RIGHT TO MINE (CHECK ONE)

☒ MINERAL DEED☐ LEASE☐ WARRANTY DEED☐ VERBAL AGREEMENT☐ OTHER (DESCRIBE):

DATE OF AGREEMENT

06/12/26

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.

Additional Landowner
A.C. David Pit #1

(Section 17)

Michael and Theresa McDonald
942 Ranch Bluff Road
Villa Ridge, MO 63089

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RECLAMATION COMMISSION

PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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JAN 17 2000

TYPE OF PLAN (CHECK ONE)

☐ SHORT TERM, FOR ONE PERMIT YEAR☒ LONG TERM, FOR PERIOD THROUGH DATE 12/31/2050MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY

The soil is rocky loam, vegetation consists of standing timber with typical underbrush. Slopes drop sharply to the north on the northern portion of the deed area. This pit has been partially mined prior to 1972 with most of the disturbance on the northern portion of the mineral deed.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

-12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFF-SITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Prior to topsoil removal and immediately following any clearing of vegetation, appropriate sediment control measures will be installed including straw bale dikes, silt fences, rock check dams or sediment basins in any combination depending on site specific conditions. Topsoil will be removed using rubber-tired scrapers and/or bulldozers. The topsoil will be stored near the pit within the permitted pit area. We will remove the surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded if necessary with a cover crop to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be stockpiled adjacent to the excavation and within the permit boundary to form a dam to the north of the pit. After mining is completed the spoil will be graded into a dam or backfilled in the pit as is warranted.

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RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

(See site maps)

YES NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed)

RECLAMATION PLAN - 10 CSR 40-10.02(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1 Mixture #1	PURPOSE OR LAND USE Development	B. SEEDING OR PLANT TIME Fall or Spring
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DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

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RECLAMATION COMMISSION

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Tall Fescue Red Clover Lespedeza Wheat or Oats	25 5 5 30		

VEGETATION MIX #2 Mixture #2	PURPOSE OR LAND USE Development	B. SEEDING OR PLANTING TIME Spring or Fall
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DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Orchard Grass Timothy Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. An impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion. In no case will the reclaimed topography exceed a 3:1 slope.

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C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas or put into a dam to create an impoundment. Final grading of all disturbed areas will be completed within one year after mining. Areas affected, and no longer needed as part of the active operation will be graded within one year of the expiration of the permit during which the disturbance occurred.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and/or bulldozers after mining is completed as described in accordance with MO 10CSR-40.10.050 (A)(10)(A).

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)

-12"

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation:

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

3

Development (residential, industrial, and recreational)


0

Water impoundments (for wildlife, agricultural, or development)

1

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT 		TITLE <i>Mine Supervisor</i>	
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Missouri</i>		COUNTY (OR CITY OF ST. LOUIS) <i>Callaway</i>
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>11</i> DAY OF <i>January</i> 20 <i>00</i>		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Karen S Luther</i>	MY COMMISSION EXPIRES <i>7-18-03</i>	KAREN S. LUTHER NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY MY COMMISSION EXPIRES JULY 18, 2003
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Karen S Luther</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER



ONE STOP SERVICE

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MELVIN WOLFE, Agent

201 East Main

Linn, MO. 65051

Ph. 573-897-2190

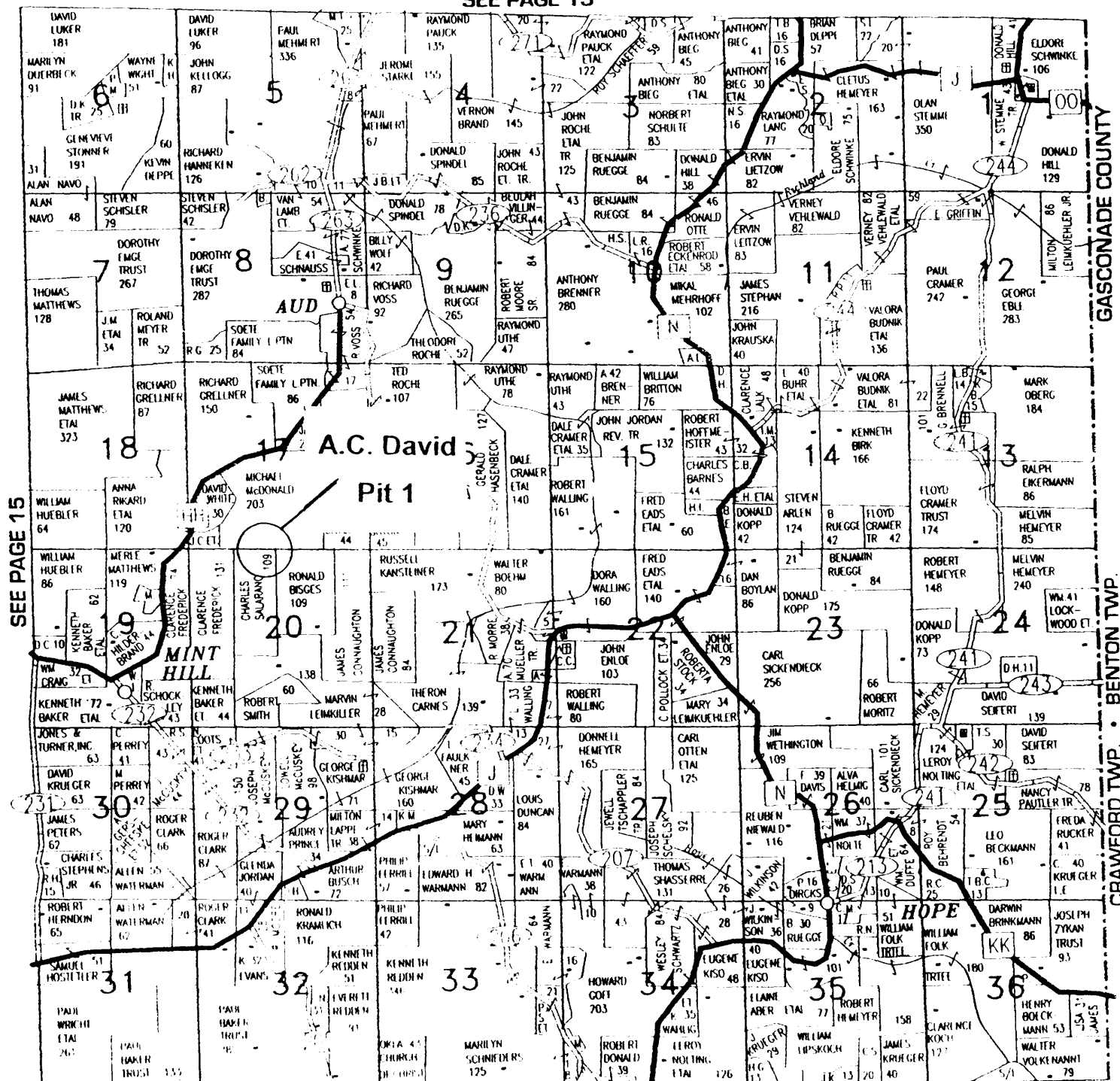
JAN 12 2000
MISSOURI LAND
RECLAMATION COMMISSION
We'll always be there for you.

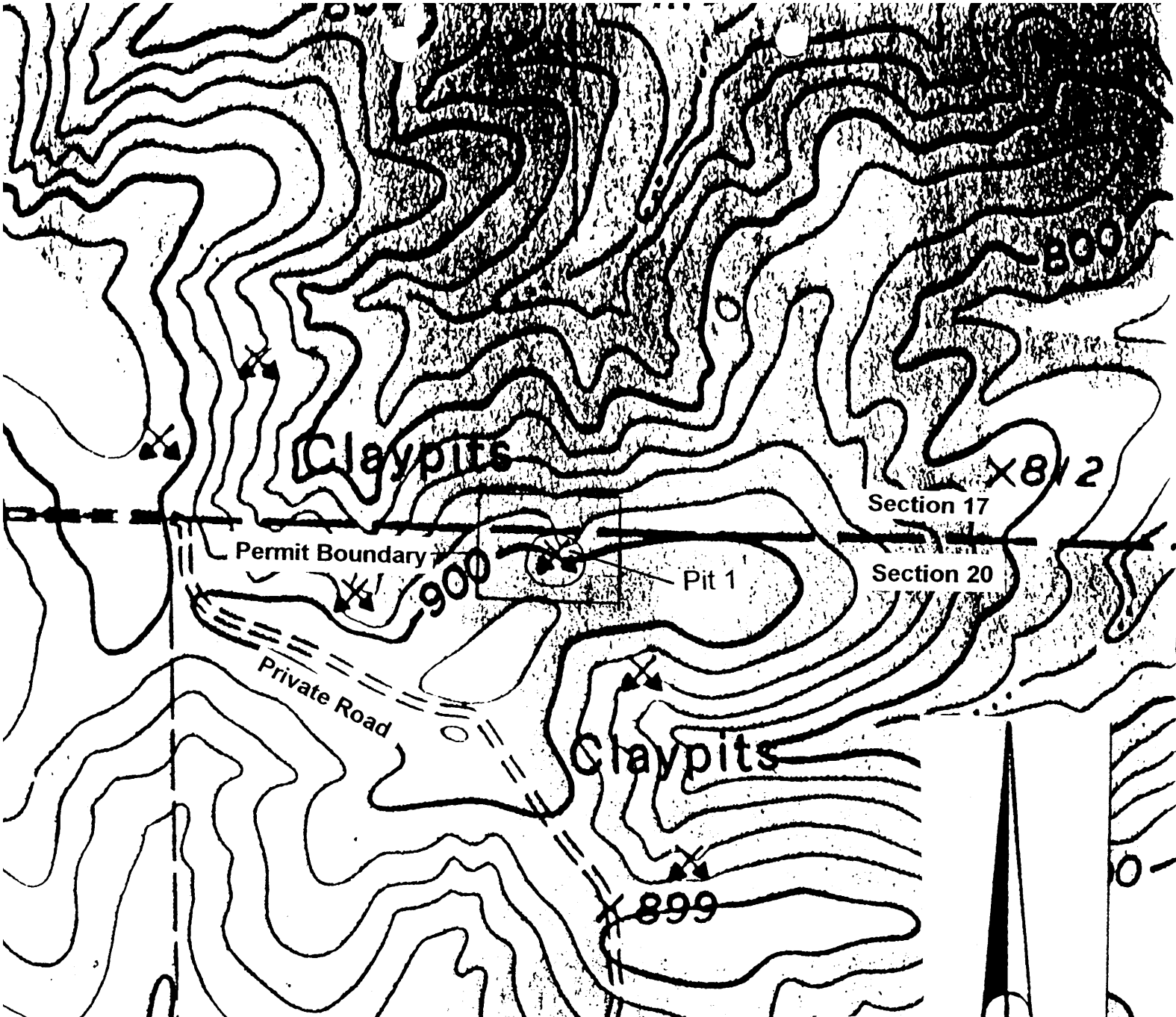
Shelter Insurance Cos., Home Office: 1817 W. Broadway, Columbia, MO 65218

SOUTHEAST PART BENTON
NORTHEAST PART CRAWFORD

TOWNSHIP 44N - RANGE 7W

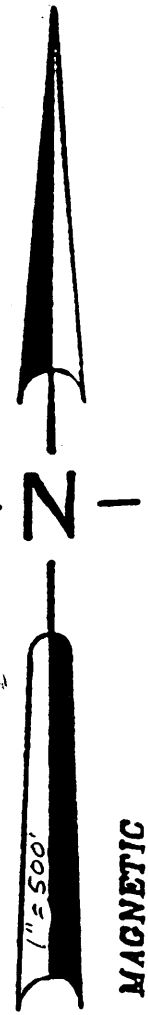
SEE PAGE 13







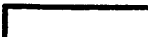

Harbison-Walker Refractories Company	
P. O. Box 430, Fulton, Missouri 65251	
Property:	A.C. David Pit 1
Project:	Land Reclamation Permit Location Map
Location:	Sect. 20 & 17. T. 44 N., R. 7 W. Osage County, Missouri
Designed by: DJK	Date: January 4, 2000

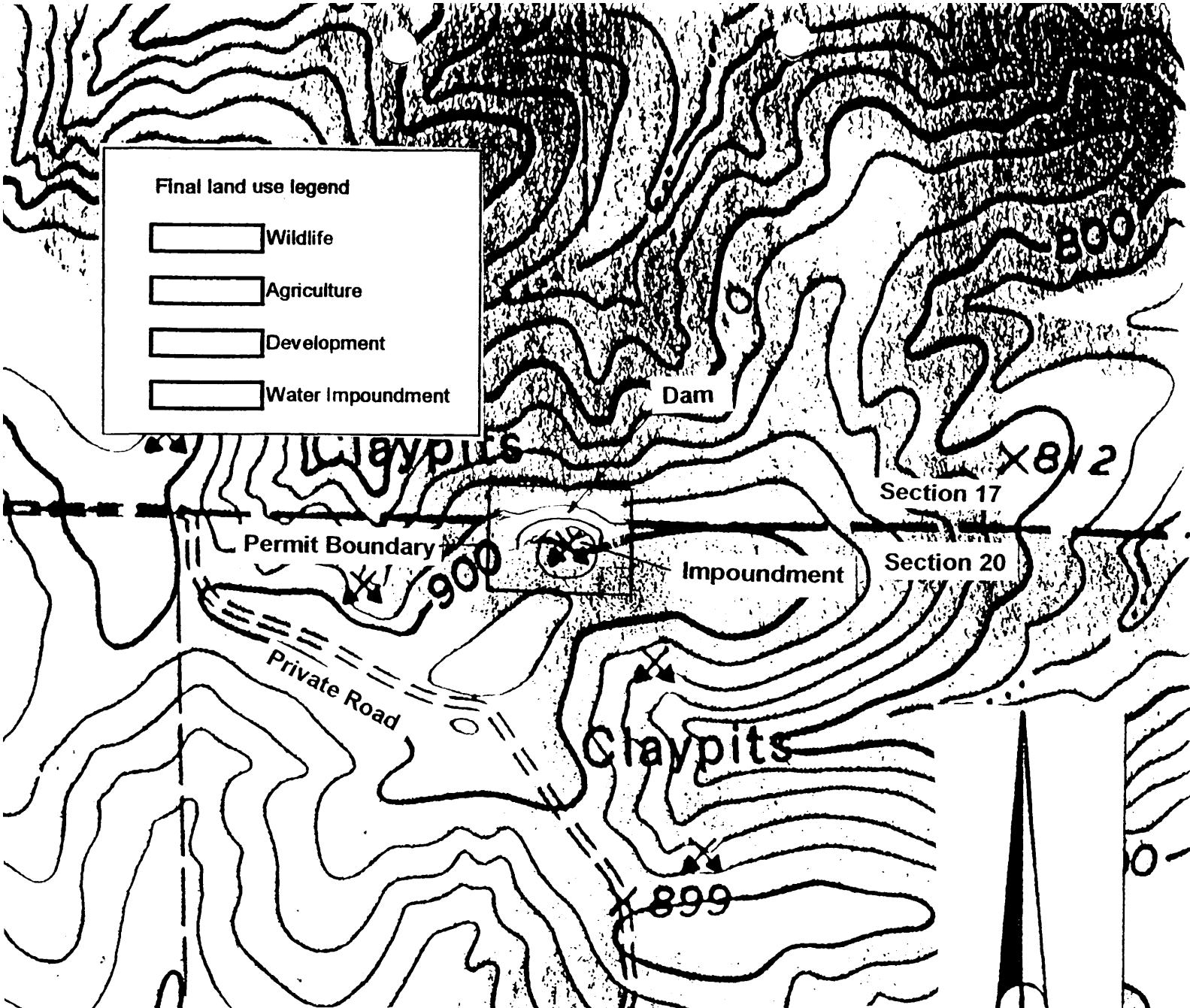
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RECLAMATION COMMISSION



MAGNETIC

Final land use legend

-  Wildlife
-  Agriculture
-  Development
-  Water Impoundment



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

A.C. David Pit 1

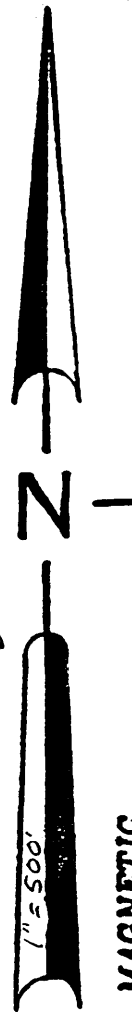
Project: Land Reclamation Permit
Final Land Use

Location: Sect. 20 & 17, T. 44 N., R. 7 W.
Osage County, Missouri

Designed by: DJK

Date: January 4, 2000

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JAN 14 2000
MISSOURI LAND
RECLAMATION COMMISSION



MAGNETIC



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 178
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: August 06, 2006

August 06, 2006

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

This site is currently a pasture area with gently rolling topography.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove 12 inches of topsoil from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Topsoil will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control erosion.

B. SPOIL**DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL**

The soil will be moved using bulldozers and rubber-tired scrapers and used to build a dam to the northeast of the pit.

C. ACID MATERIALS**DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)**

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)**DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS**

Pit #8 is located in the center of the permit area and is roughly circular in plain view with an approximate diameter of 150 feet.

YES NO

☐
☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐
☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐
☒

Will any excavation start at or within fifty feet (50') of any property line? (NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.**A. REVEGETATION (Attach additional sheets, if needed)**

REVEGETATION MIX #1 Mixture #1	PURPOSE OR LAND USE Agricultural	B. SEEDING OR PLANTING TIME Fall or Spring
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DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Wheat or oats	25 5 30		

VEGETATION MIX #2 Mixture #2	PURPOSE OR LAND USE Agricultural	B. SEEDING OR PLANTING TIME Fall or spring
---------------------------------	-------------------------------------	---

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Re-seeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or Oats use serecea Lespedeza on slopes	10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Pit #8 will be reclaimed by constructing a dam to the north of the pit. This will create an impoundment of approximately 2 acres with traversable slopes.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances and as spoil is either backfilled or put into a dam. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

12 inches

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

Agricultural (pasture, cropland, and horticultural)

2

Development (residential, industrial, and recreational)

or impoundments (for wildlife, agricultural, or development)

2

By my signature, I attest to the following:

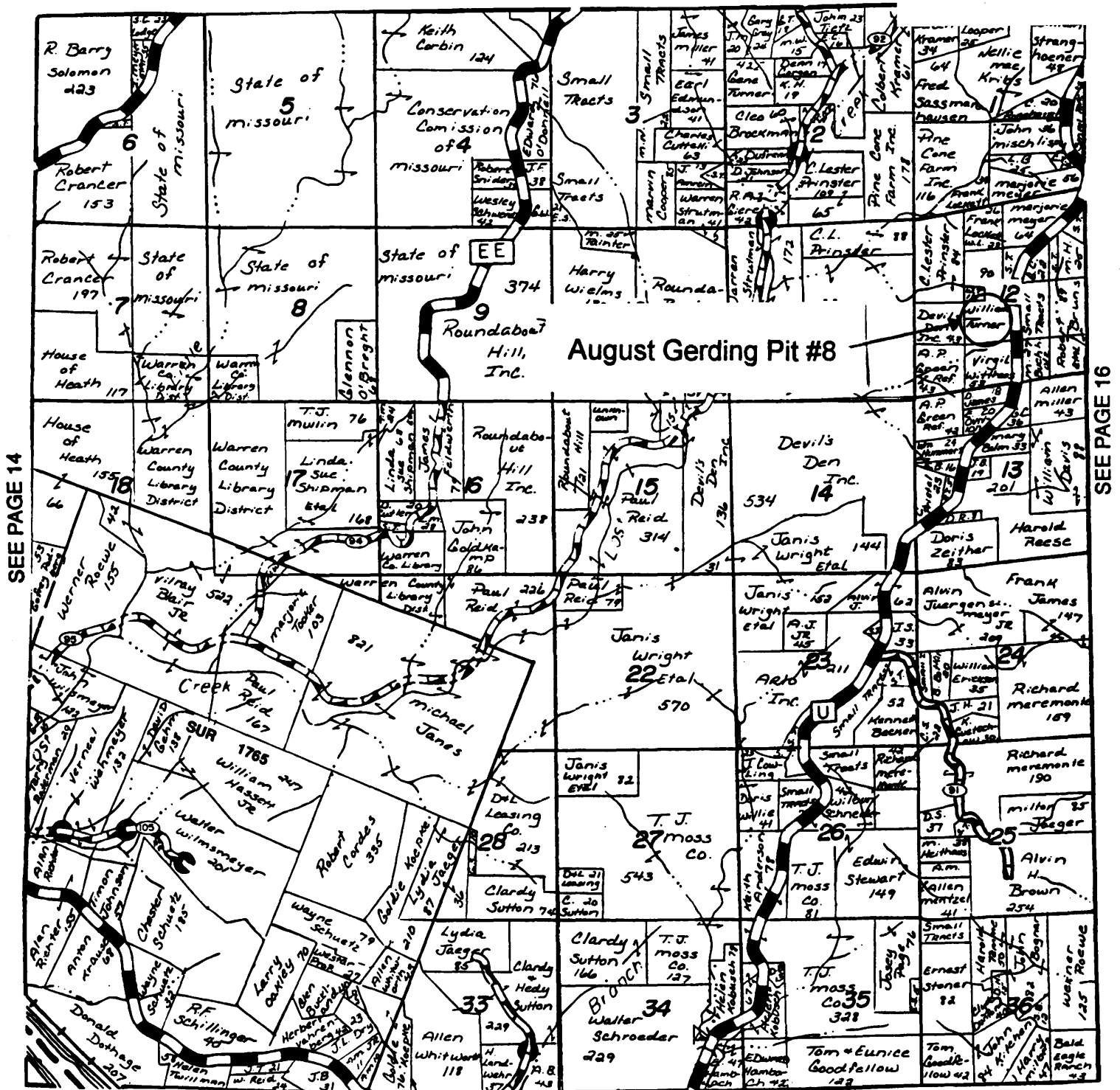
1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>W K Brown</i>		TITLE <i>Vice-President</i>	DATE <i>June 28, 1996</i>
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Pennsylvania</i>		COUNTY (OR CITY OF ST. LOUIS) <i>Allegheny</i>
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>28th</i> DAY OF <i>June</i> 19 <i>96</i>		USE RUBBER STAMP IN CLEAR AREA BELOW <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 29, 1997 Member, Pennsylvania Association of Notaries </div>
	NOTARY PUBLIC SIGNATURE <i>Kathleen S. Fuchs</i>	MY COMMISSION EXPIRES <i>11/29/97</i>	
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>KATHLEEN S. FUCHS</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>Thomas J. Hulse</i>		DATE APPROVED <i>9-13-96</i>	PERMIT NUMBER <i>0146</i>

Township 46 Range 3W

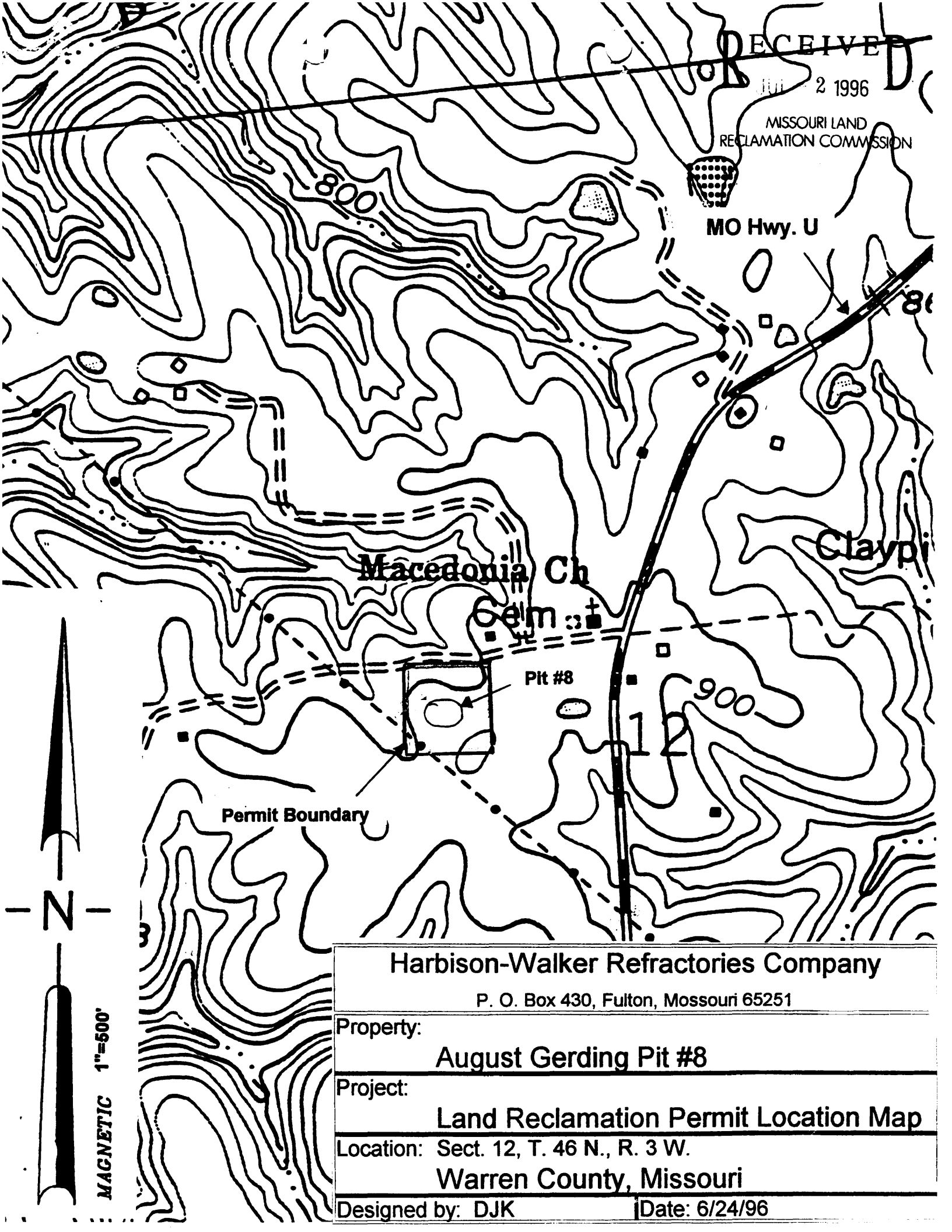
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SEE PAGE 11



SEE PAGE 18

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RECLAMATION COMMISSION



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

August Gerding Pit #8

Project:

Land Reclamation Permit Location Map

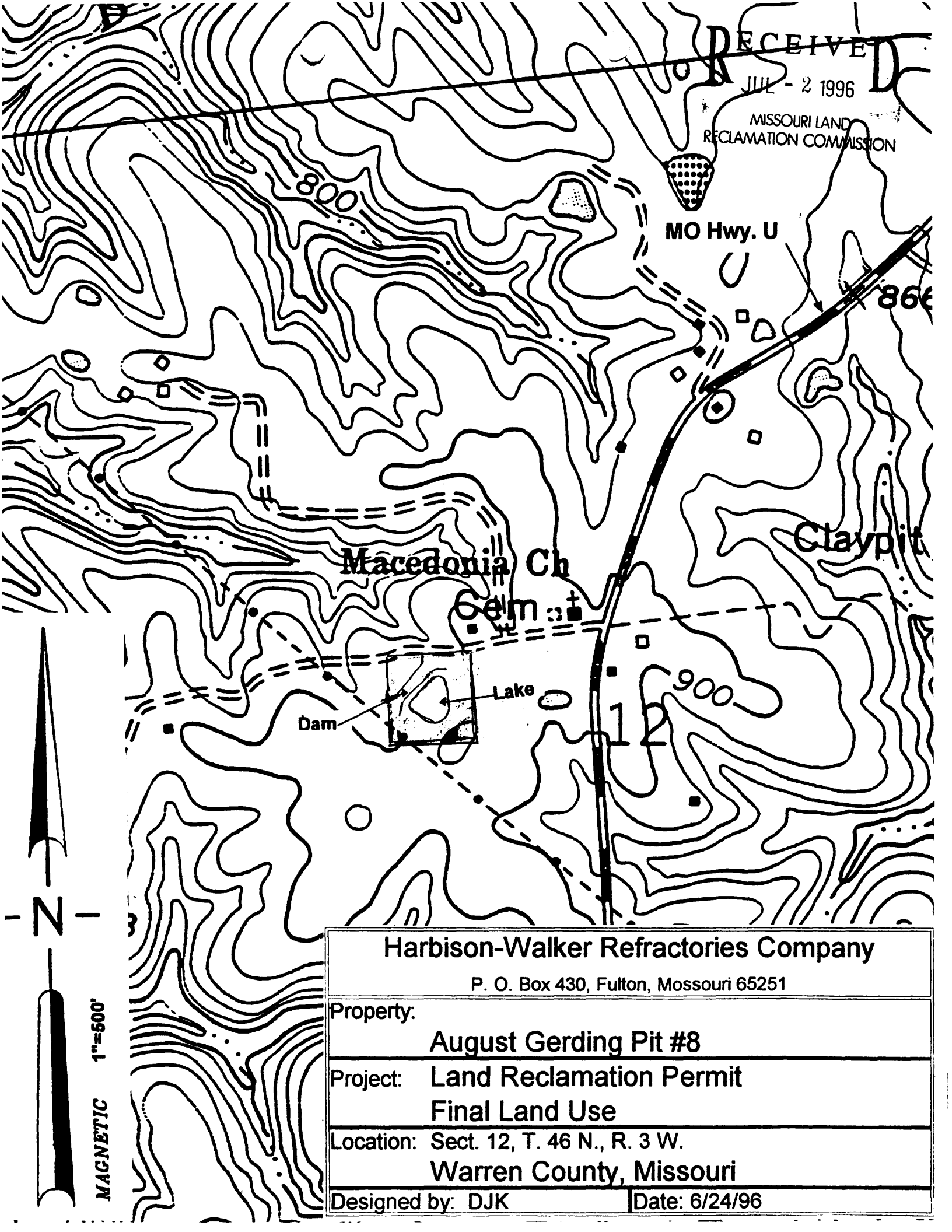
Location: Sect. 12, T. 46 N., R. 3 W.

Warren County, Missouri

Designed by: DJK

Date: 6/24/96

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RECLAMATION COMMISSION



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

August Gerding Pit #8

Project:

**Land Reclamation Permit
Final Land Use**

Location: Sect. 12, T. 46 N., R. 3 W.

Warren County, Missouri

Designed by: DJK

Date: 6/24/96

MISSOURI DEPARTMENT OF NATURAL RESOURCES

LAND RECLAMATION COMMISSION

SITE INFORMATION FORM

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JAN 12 2000

P.O. BOX 176

MISSOURI JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER B. Meyer 3 and 4 Expansion to existing site		RECLAMATION COMMISSION NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Warren	1/4 SECTION NW 1/4	SECTION 9
TOWNSHIP 46 North	RANGE 2 West	ACRES 9
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) See Attachment		
ADDRESS		
CITY	STATE	ZIP CODE
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company		
ADDRESS P.O. Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.		

Additional Landowners

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Parcel #

1. Brenda L Reyes
1119 Carrington Dr.
St. Peters, MO 63376
2. Richard Willis III
Rt. 1, Box 249A
Warrenton, MO 63383
3. Harry Harper
P.O. Box 549
Warrenton, MO 63383
4. Clemence and Jane Bennett
Route 1, Box 259B
Warrenton, MO 63383
5. Brian G. Letford
3 Shadow Lane
St. Peters, MO 63376
6. Pamela McRoy
Route 1, Box 260
Warrenton, MO 63383

MISSOURI DEPARTMENT OF NATURAL RESOURCES

LAND RECLAMATION COMMISSION

PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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JAN 12 2000MISSOURI LAND
RECLAMATION COMMISSION

TYPE OF PLAN (CHECK ONE)

☐ SHORT TERM, FOR ONE PERMIT YEAR☒ LONG TERM, FOR PERIOD THROUGH DATE: 12/31/2050

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY

The site is currently in brush and timber and is being used for wildlife. The pit occurs in a shallow draw where the topography is gently sloping to the west. Topsoil in the area is fair.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be removed using bull-dozers and rubber tired scrapers. Spoil will be backfilled in low areas or in a dam to the west of the pits

RECEIVED
JAN 12 2000
MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT. IF NOT CLEAR ON SITE MAPS

see site maps

YES NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☒☐

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Development

B SEEDING OR PLANT TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

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RECLAMATION COMMISSION

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Wheat or Oats	25 5 30		

VEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Development

B SEEDING OR PLANTING TIME

Spring or Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. Two small impoundments will be left by the final phase of mining. The impoundments will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

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RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will either be backfilled in natural low areas to the south, in previously mined areas or into dams to create impoundments. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)	12
--	-----------

D. USE OF LAND WHEN RECLAIMED

<i>Estimate acreage of each land use below, after reclamation:</i>	ESTIMATED ACRES:
Wildlife (forest or other habitat with livestock excluded)	0
Agricultural (pasture, cropland, and horticultural)	0
Development (residential, industrial, and recreational)	7
Water impoundments (for wildlife, agricultural, or development)	2

RECEIVED
JAN 12 2000

By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>[Signature]</i>		TITLE <i>Mine Supervisor</i>	
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Missouri</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Callaway</i>	
	SUBSCRIBED AND SWORN BEFORE ME, THIS 11 DAY OF <i>January</i> 20 00		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Karen S Luther</i>	MY COMMISSION EXPIRES <i>7-18-03</i>	
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Karen S Luther</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER

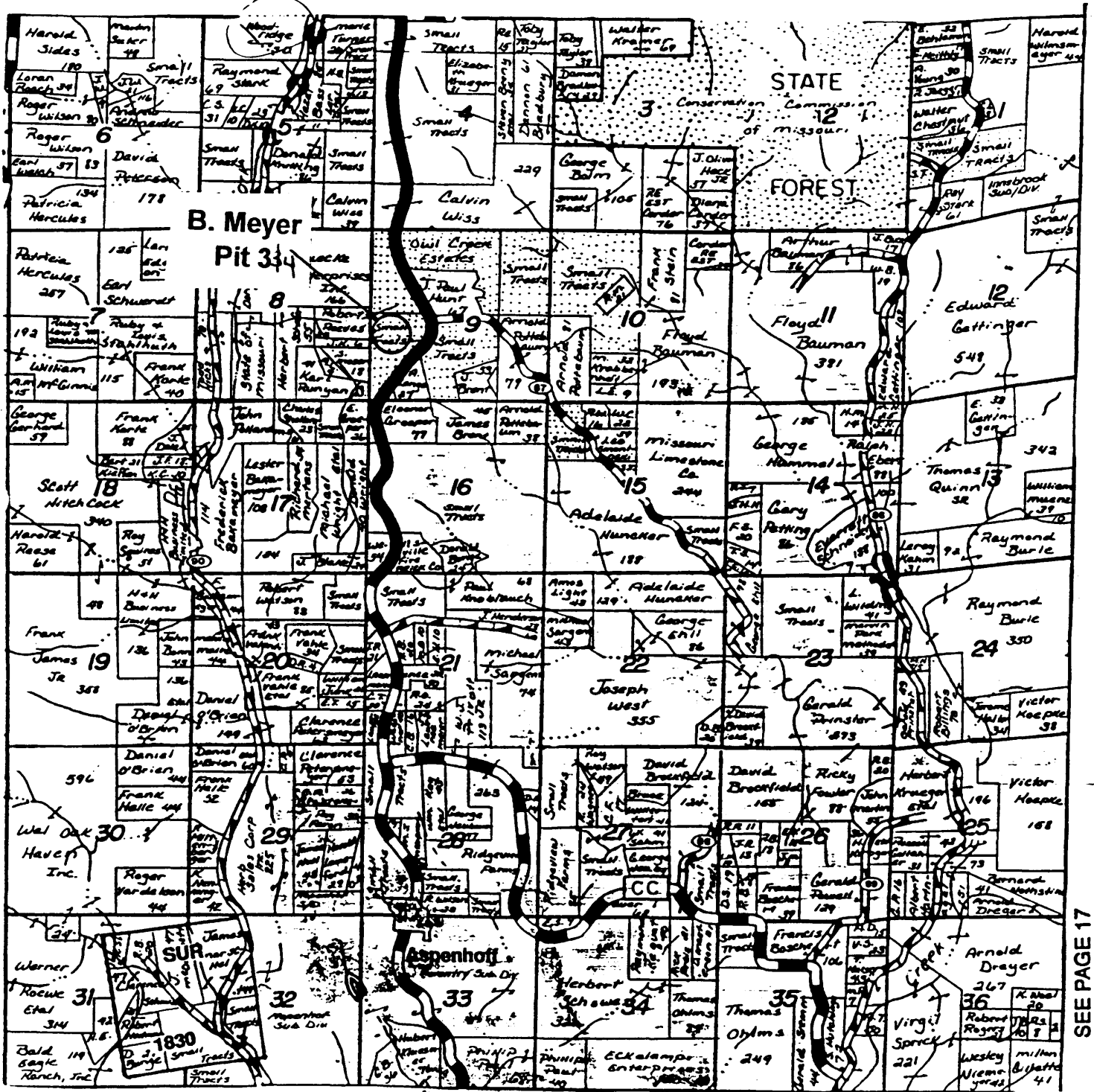
Township 46 Range 2W

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JAN 1 2000

MISSOURI LAND
RECLAMATION COMMISSION

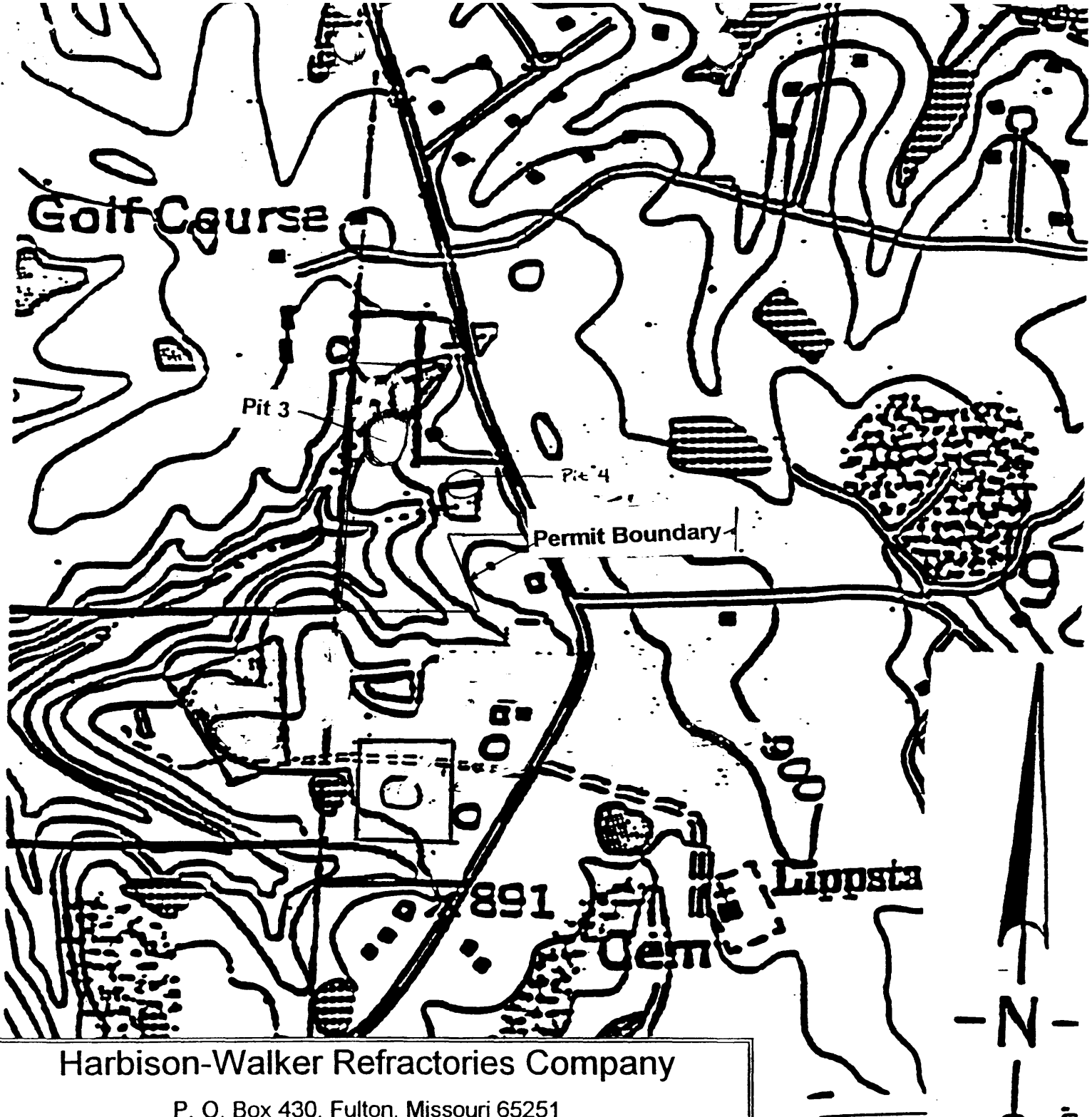
SEE PAGE 15

SEE PAGE 12



SEE PAGE 17

SEE PAGE 19



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

B. Meyer

Pit 3 & 4

Project: Land Reclamation Permit
Location Map

Location: Sect. 9, T. 46 N., R. 2 W.
Warren County, Missouri

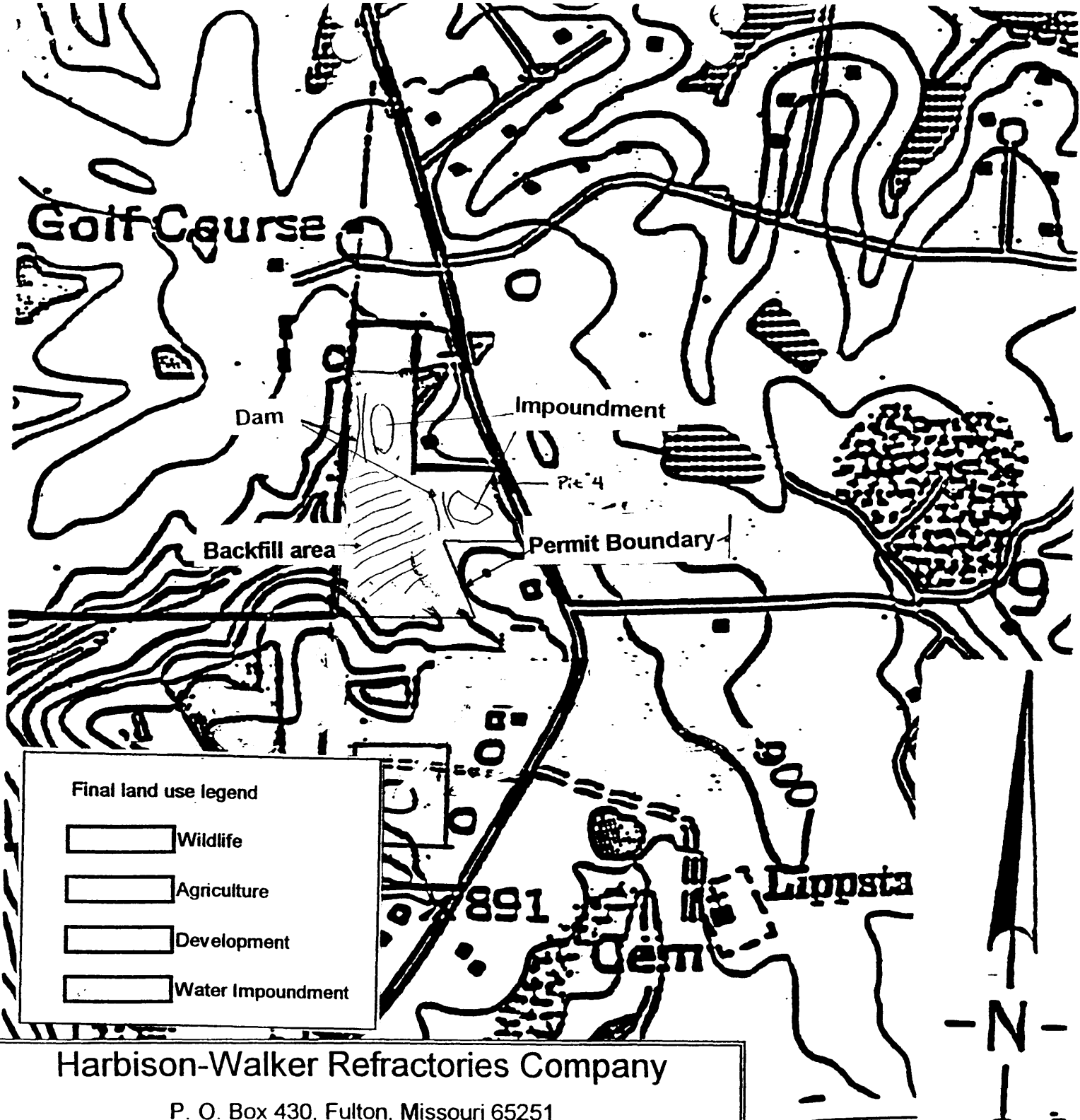
Designed by: DJK

Date: January 4, 2000





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JAN 12 2000
MISSOURI LAND
RECLAMATION COMMISSION

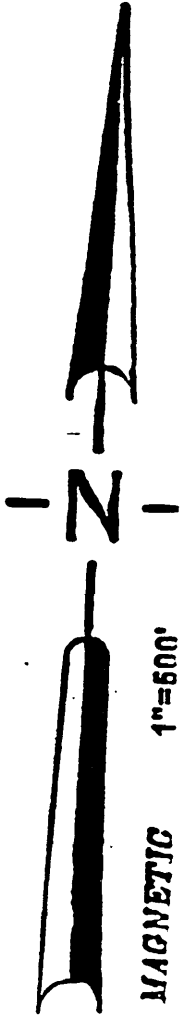
1"=500'

MAGNETIC



Final land use legend

-  Wildlife
-  Agriculture
-  Development
-  Water Impoundment



Harbison-Walker Refractories Company	
P. O. Box 430, Fulton, Missouri 65251	
Property: B. Meyer Pit 3 & 4	
Project: Land Reclamation Permit Final Land Use	
Location: Sect. 9, T. 46 N., R. 2 W. Warren County, Missouri	
Designed by: DJK	Date: January 4, 2000

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 JAN 12 2000
 MISSOURI LAND
 RECLAMATION COMMISSION



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

To be completed for each separate area of disturbance associated with mining operations.

SITE NAME OR NUMBER BUXTON #3, #4		PERMIT NUMBER 146	
COMPANY NAME Harbison-Walker Refractories, a division of INDRESCO Inc.			
COUNTY Warren	1/4 SECTION Northeast Quarter	SECTION 8	
TOWNSHIP T 46 N	RANGE R 3 W	ACRES 5	
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	

NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE) State of Missouri % Susan M. Troxel, Resource Forester		
ADDRESS PO Box 157		
CITY Warrenton	STATE Missouri	ZIP CODE 63383
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): _____ <input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		DATE OF AGREEMENT September 6, 1961

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Same as above		
ADDRESS		
CITY	STATE	ZIP CODE
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): _____ <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		DATE OF AGREEMENT

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2004

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

BUXTON #3, #4

This plan covers a total of 5 acres containing three small clay pits. The northern most area is approximately 3 acres and contains 2 small clay pits. The southernmost area is 2 acres and contains 1 small clay pit. Both of the areas are on ridge tops and are currently being used as wildlife habitat. Slopes within the permit area are gentle. Vegetation consists of pasture grasses and wooded areas.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

6 to 12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers and stored near the pit within the permit area. We will remove 6 to 12 inches of topsoil from all areas to be disturbed before stripping or mining begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Topsoil will be stored in gently sloping piles. Topsoil storage piles will be seeded with annual grasses, if necessary, to control erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

In the southernmost permit area containing Pit#3 the spoil will be placed on the low side of the pit to form a small dam. The dam will be built using SCS Pond 378 standards for Missouri.

In the northernmost permit area containing Pit #4 and Pit #7, Pit #7 in the north half of the area will be mined first. The spoil will be placed in the low area west of the pit. Pit #4 will be mined after Pit #7 and the spoil will be placed in Pit #7. Pit #7 will be totally backfilled. A small dam will be built on the low side of Pit #4 as to impound more water. The dam will be built using SCS Pond 378 standards for Missouri.

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

All the pits are circular and have a diameter of less than 150 feet.

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will any excavation start at or within fifty feet (50') of any property line? (NOTE: If the answer is "yes", a safety barrier may be needed.)

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Two one acre impoundments will be left by the mined out pits. All spoil and pit areas above the anticipated water level will be graded to traversable slopes using dozers and rubber-tired scrapers. Diversion ditches will be constructed as necessary to control erosion and runoff. Hay bales will be staked down in areas as needed to control gullies.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as the pit advances and spoil is placed in the dam and fill areas. Final grading of all disturbed areas will be completed within one year after mining is complete.

REPLACEMENT OF TOPSOIL

Topsoil will be laid down using rubber-tired scrapers and dozers within one year after grading is complete.

REVEGETATION

The site will be seeded the following Spring or Fall after topsoil replacement.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

12

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

3

Agricultural (pasture, cropland, and horticultural)



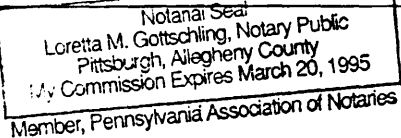
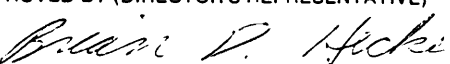
Development (residential, industrial, and recreational)

Water impoundments (for wildlife, agricultural, or development)

2

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

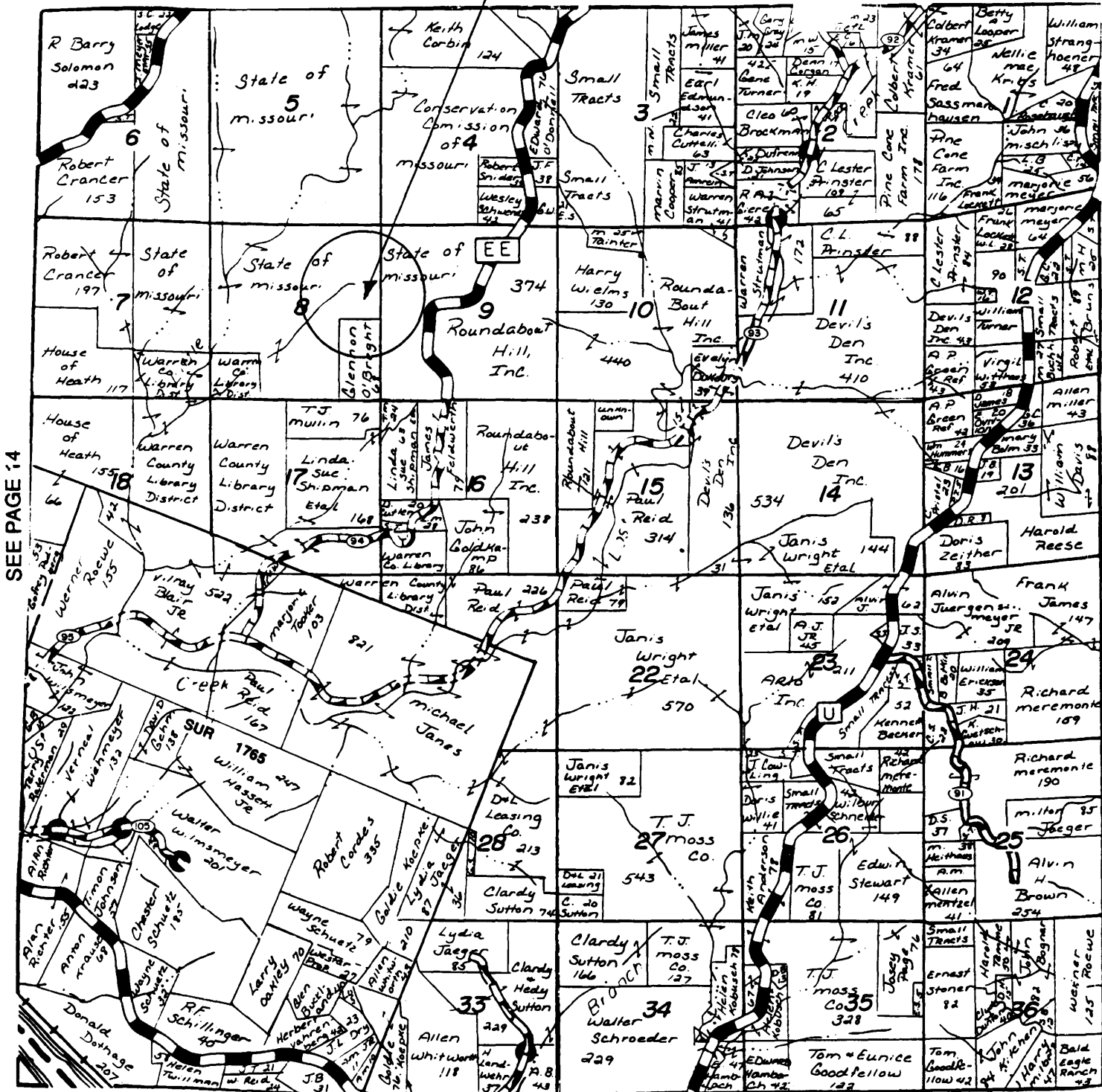
SIGNATURE OF APPLICANT 		TITLE John S. Miller	DATE 5-24-94
NOTARY PUBLIC EMBOSSEY SEAL 	STATE Pennsylvania	COUNTY (OR CITY OF ST. LOUIS) Allegheny	
	SUBSCRIBED AND SWORN BEFORE ME, THIS 24 th DAY OF May, 19 94		USE RUBBER STAMP IN CLEAR AREA BELOW 
	NOTARY PUBLIC SIGNATURE Loretta M. Gottschling	MY COMMISSION EXPIRES Mar. 20, 1995	
	NOTARY PUBLIC NAME (TYPED OR PRINTED) Loretta M. Gottschling		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) 		DATE APPROVED 7-27-94	PERMIT NUMBER 146

Township 46

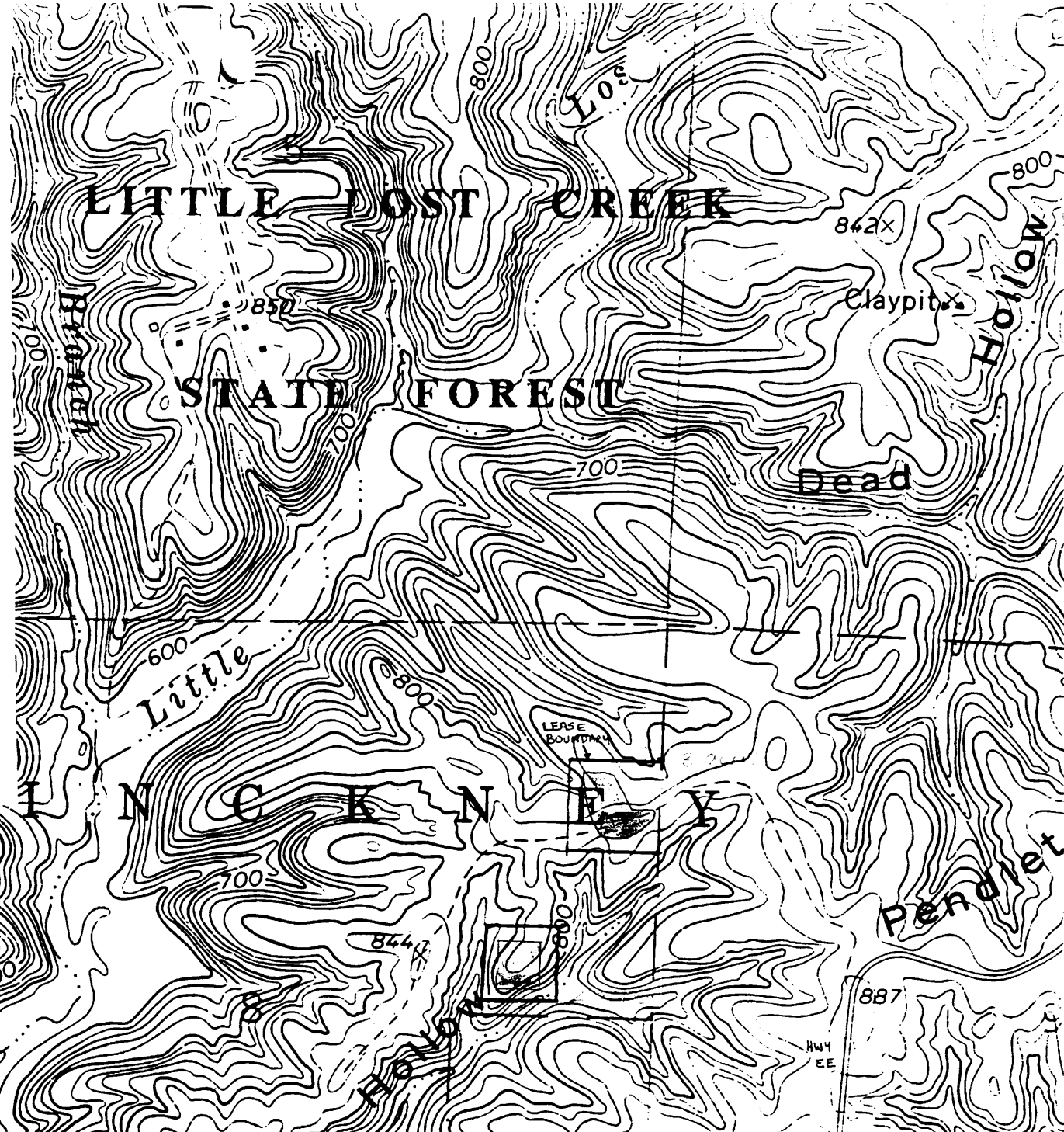
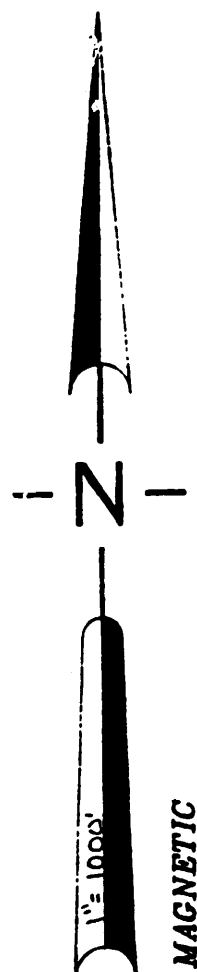
Range 3W

SEE PAGE 11

BUXTON #3, #4



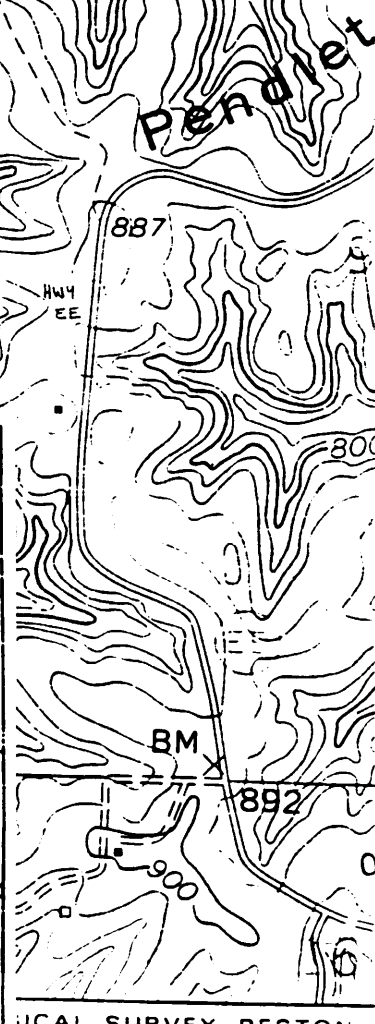
SEE PAGE 18



INDRESCO
HARBISON-WALKER REFRACTORIES
Division of INDRESCO Inc.

P.O. Box 430, Fulton, Missouri 65251

PROPERTY:	Warren CO NE 1/4, Sec 8, T 46 N, R 3 W
PROJECT:	BUXTON #3, #4
LOCATION:	MISSOURI DNR PERMIT
	HWY EE WARREN CO. 5-17-94



ICAL SURVEY, RESTON
651000-5

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

P.O. BOX 176
JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER Charles Bunten Pit #1		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Gasconade	1/4 SECTION SE	SECTION 4
TOWNSHIP 40 North	RANGE 6 West	ACRES 5
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)

NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) John Federhofer		
ADDRESS 4735 Idaho		
CITY St. Louis	STATE MO	ZIP CODE 63111
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company <i>same as above</i> <i>David Hill MO 7-29-97</i>		
ADDRESS PO Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT August 10, 1950 <input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.

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JUL 11 1997
MISSOURI LAND
RECLAMATION COMMISSION

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

RECEIVED
JUL 11 1997
MISSOURI LAND
RECLAMATION COMMISSION

TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 03/01/2007

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY.

The site is moderately sloping with approximately one-third of the total area in open timber while the other two-thirds in pasture. The soil is typical for the area, a loamy residual soil.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be moved using rubber-tired scrapers and bull dozers to form a dam to the east of the pit. Slopes will be graded to traversable slopes.

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

This pit is located in the middle of the five acre reservation and is roughly circular in plan view.

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MISSOURI LAND
RECLAMATION COMMISSION

YES

NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

VEGETATION MIX #1	PURPOSE OR LAND USE	B. SEEDING OR PLANT TIME
Mixture #1	Agriculture	Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or Oats	30		

VEGETATION MIX #2	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #2	Agricultural	Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or Oats	30		
Serecea Lespedeza (On Slopes)	20		

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RECLAMATION COMMISSION

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING

DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A small impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES

GRADING

Grading will be done as mining advances and as spoil is either backfilled or put into a dam. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

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JUL 11 1997
MISSOURI LAND
RECLAMATION COMMISSION

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)

12

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation:

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

4

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

1

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>William K. Brown</i>		TITLE <i>Vice President</i>	DATE <i>7/3/97</i>
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Pennsylvania</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Allegheny</i>	
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>3RD</i> DAY OF <i>JULY</i> 19 <i>97</i>		
	USE RUBBER STAMP IN CLEAR AREA BELOW		
NOTARY PUBLIC SIGNATURE <i>Kathleen S. Fuchs</i>		MY COMMISSION EXPIRES <i>11/29/97</i>	<div>Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 29, 1997 Member, Pennsylvania Association of Notaries</div>
NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>KATHLEEN S. FUCHS</i>			
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>William Scholtz</i>	DATE APPROVED <i>7-29-97</i>	PERMIT NUMBER <i>146</i>	EXPIRATION DATE <i>7-31-2007</i>

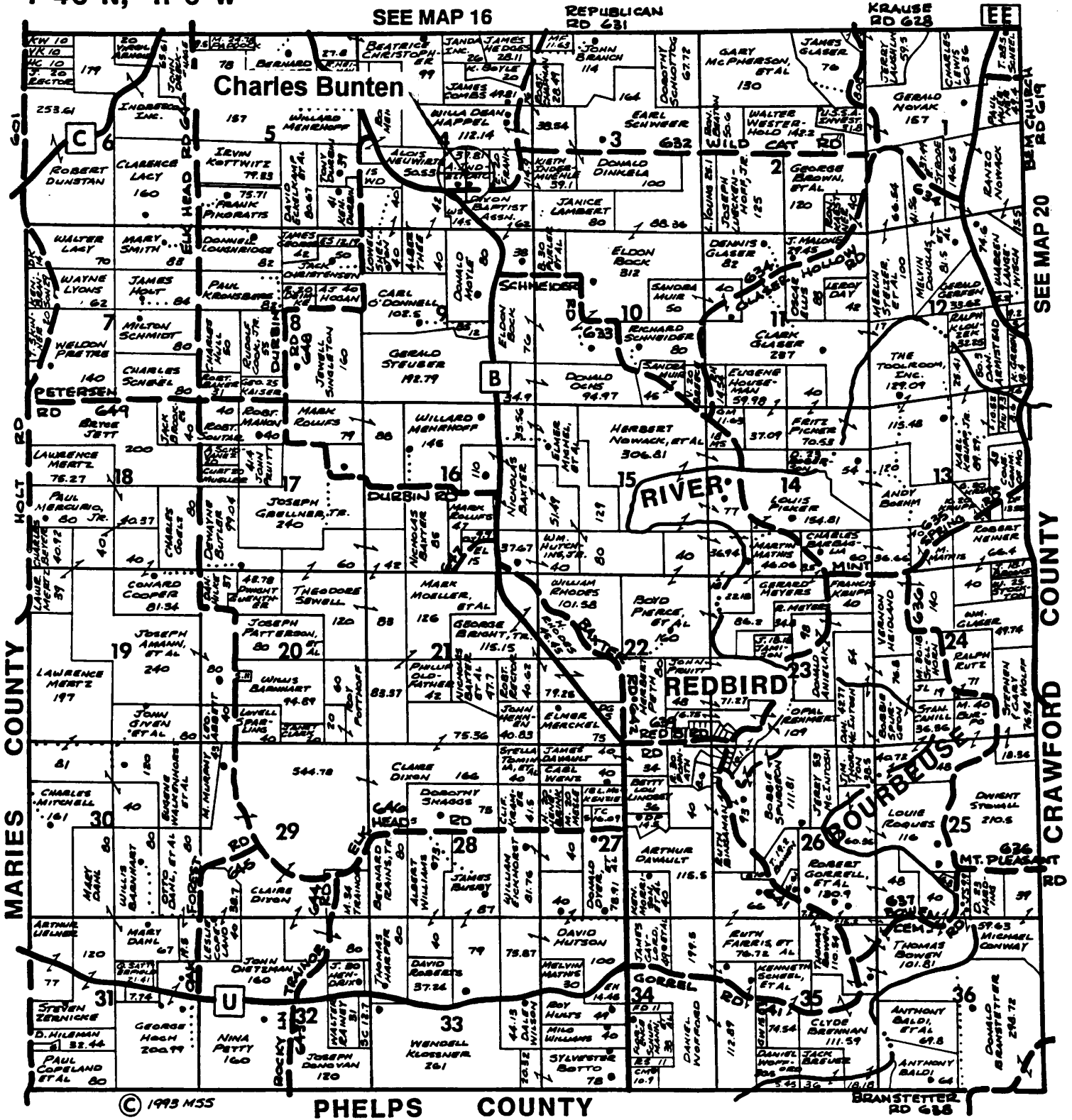
T 40 N, R 6 W

SEE MAP 16

REPUBLICAN
RD 631

KRAUSE
RD 628

Charles Buntin



© 1993 MSS

PHELPS COUNTY

RECEIVED
JUL 11 1997
MISSOURI LAND
RECIAMATION COMMISSION

MAP 21

Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Charles Bunten Pit #1

Project: **Land Reclamation Permit**

Final Land Use

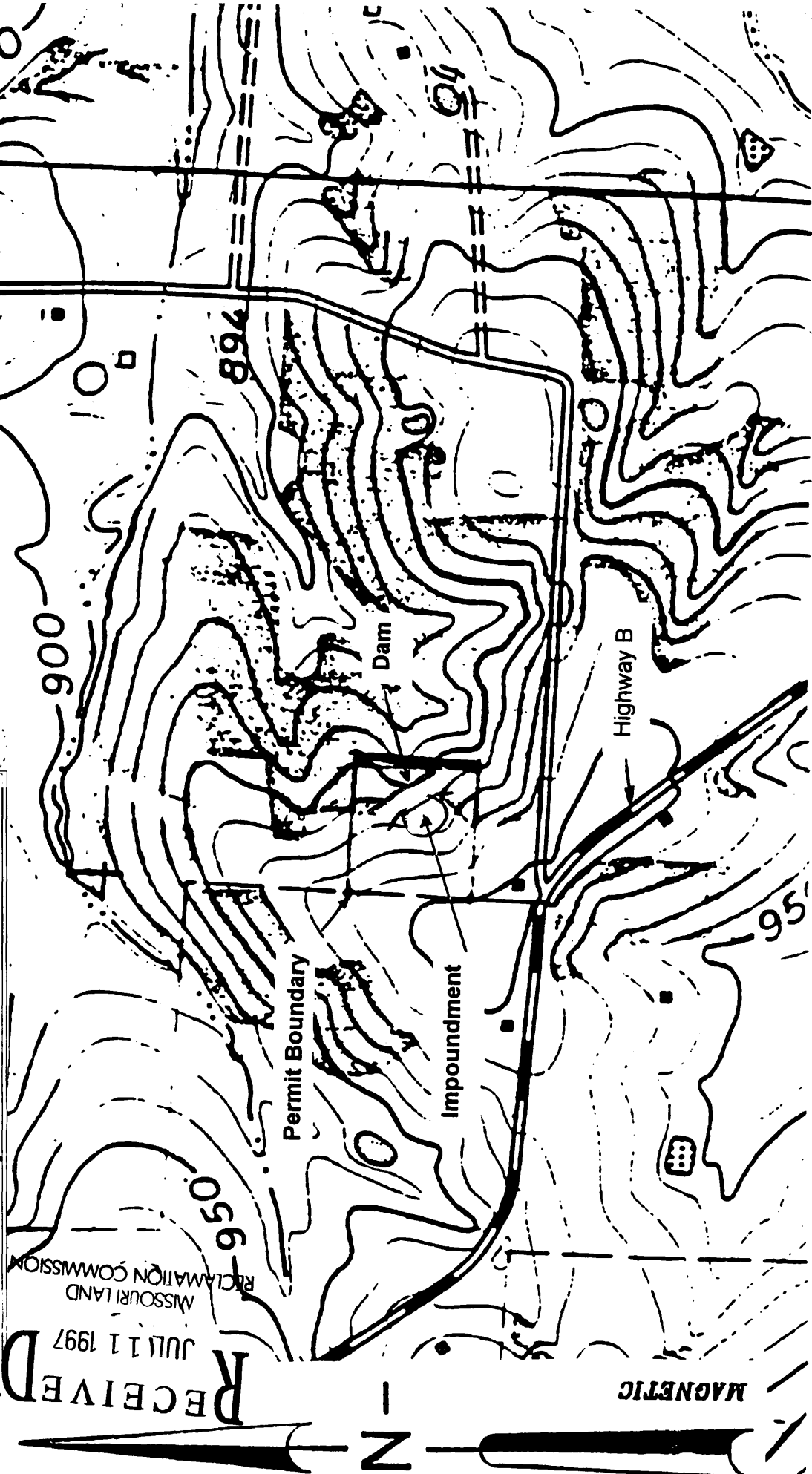
Location: **Sect. 4, T. 40 N., R. 6 W.**

Gasconade County, MO

Designed by: **DJK**

Date: **6/27/97**

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JUL 11 1997
MISSOURI LAND
RECLAMATION COMMISSION



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Charles Bunten Pit #1

Project: **Land Reclamation Permit**

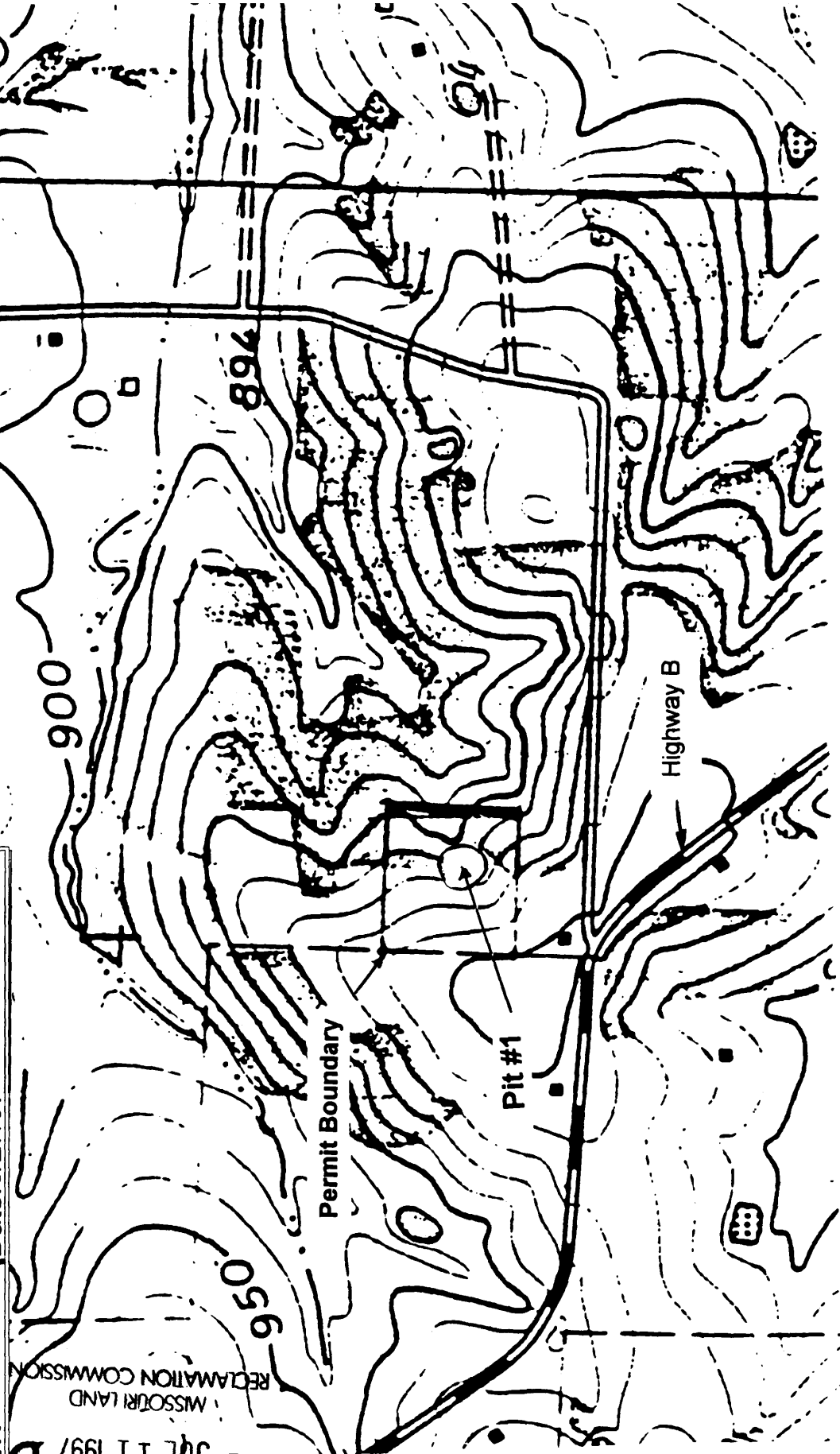
Location Map

Location: Sect. 4, T. 40 N., R. 6 W.

Gasconade County, MO

Designed by: DJK Date: 6/27/97

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JUL 11 1997
MISSOURI LAND
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1"=500'

MAGNETIC

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

RECEIVED
JAN 18 2000

P.O. BOX 176
JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER Chicago Retort Property		MISSOURI LAND RECLAMATION COMMISSION PERMIT NUMBER 146	
COMPANY NAME Harbison-Walker Refractories Company			
COUNTY Montgomery	1/4 SECTION NE 1/4		SECTION 6
TOWNSHIP 47 N	RANGE 4 W		ACRES 5
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) A.P. Green Refractories			
ADDRESS P. O. Box 430			
CITY Fulton	STATE MO		ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):			DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company			
ADDRESS P.O. Box 430			
CITY Fulton	STATE Missouri		ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input checked="" type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):			DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT 01/03/59
NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.			

PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

RECEIVED
JAN 12 2000

TYPE OF PLAN (CHECK ONE)

☐ SHORT TERM, FOR ONE PERMIT YEAR☒ LONG TERM, FOR PERIOD THROUGH DATE 12/31/2050MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY

The soil is glacial alluvium supporting open standing timber and typical underbrush. Slopes are gentle to moderate trending to the west and southwest.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

-12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Prior to topsoil removal and immediately following any clearing of vegetation, appropriate sediment control measures will be installed including straw bale dikes, silt fences, rock check dams or sediment basins in any combination depending on site specific conditions. Topsoil will be removed using rubber-tired scrapers and/or bulldozers. The topsoil will be stored near the pit within the permitted pit area. We will remove the surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded if necessary with a cover crop to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL, PLACEMENT AND DISPOSAL

Spoil will be stockpiled adjacent to the excavation and within the permit boundary to form a dam to the west of the pit. After mining is completed the spoil will be graded into a dam or backfilled in the pit as is warranted.

RECEIVED
JAN 12 2000
MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT IF NOT CLEAR ON SITE MAPS

(See site maps)

YES NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☒☐

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE If the answer is "yes", a safety barrier may be needed)

RECEIVED
JAN 10 2000

RECLAMATION PLAN - 10 CSR 40-10. (2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Wildlife

MISSOURI LAND
RECLAMATION COMMISSION

B SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Orchardgrass	10		
Timothy	10		
Red Clover	5		
Korean Lespedeza	5		
Wheat or Oats	30		
Serecea Lespedeza (on slopes)	10		

VEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Wildlife

B SEEDING OR PLANTING TIME

Spring or Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or Oats	30		
Serecea Lespedeza (On Slopes) (On Slopes)	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES

B GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. An impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion. In no case will the reclaimed topography exceed a 3:1 slope.

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JAN 14 2000
MISSOURI LAND
RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas or put into a dam to create an impoundment. Final grading of all disturbed areas will be completed within one year after mining. Areas affected, and no longer needed as part of the active operation will be graded within one year of the expiration of the permit during which the disturbance occurred.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and/or bulldozers after mining is completed as described in accordance with MO 10CSR-40.10.050 (A)(10)(A).

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)

-12"

D USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation:

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

4

Agricultural (pasture, cropland, and horticultural)

0

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

1

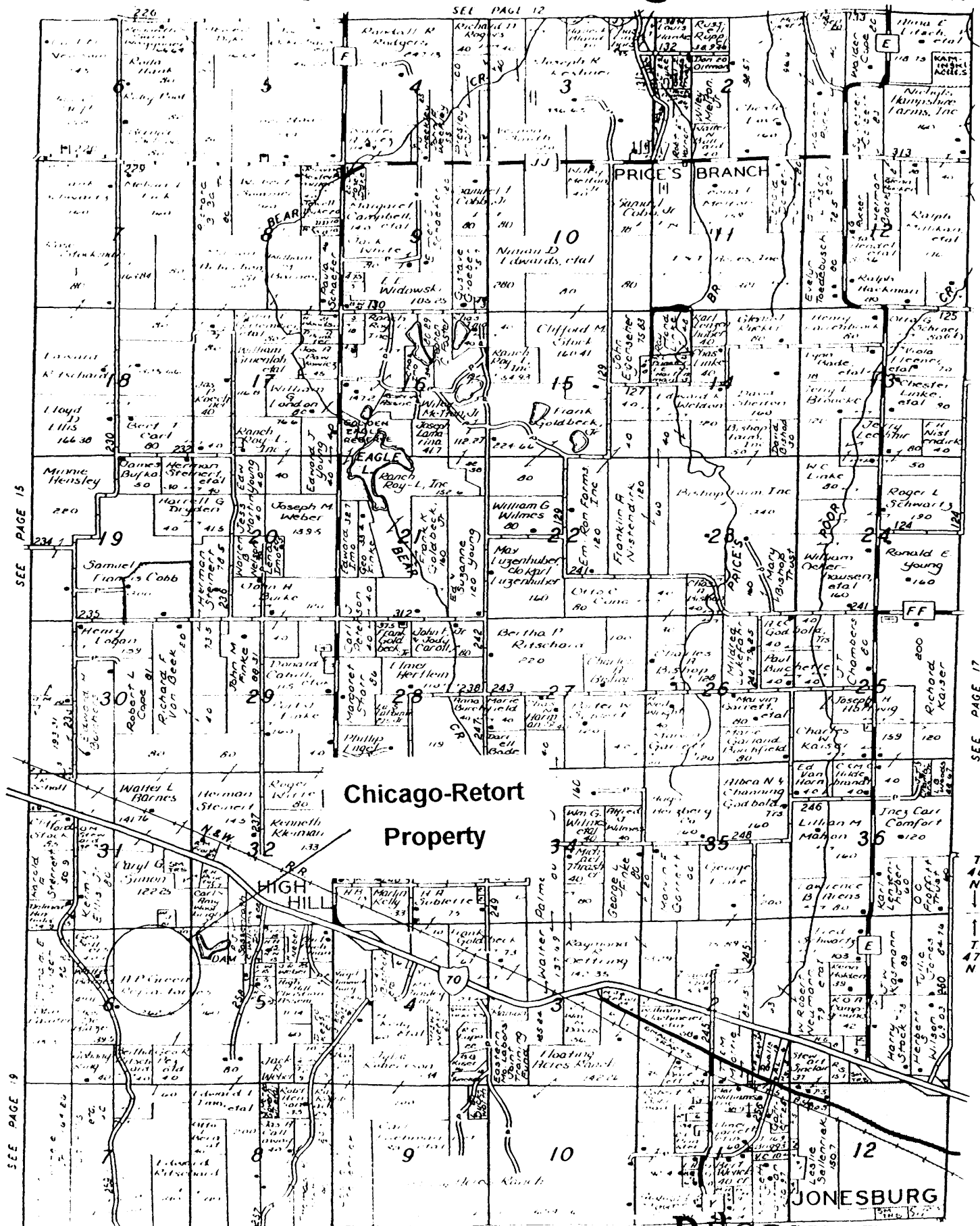
RECEIVED
JAN 12 2000

By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

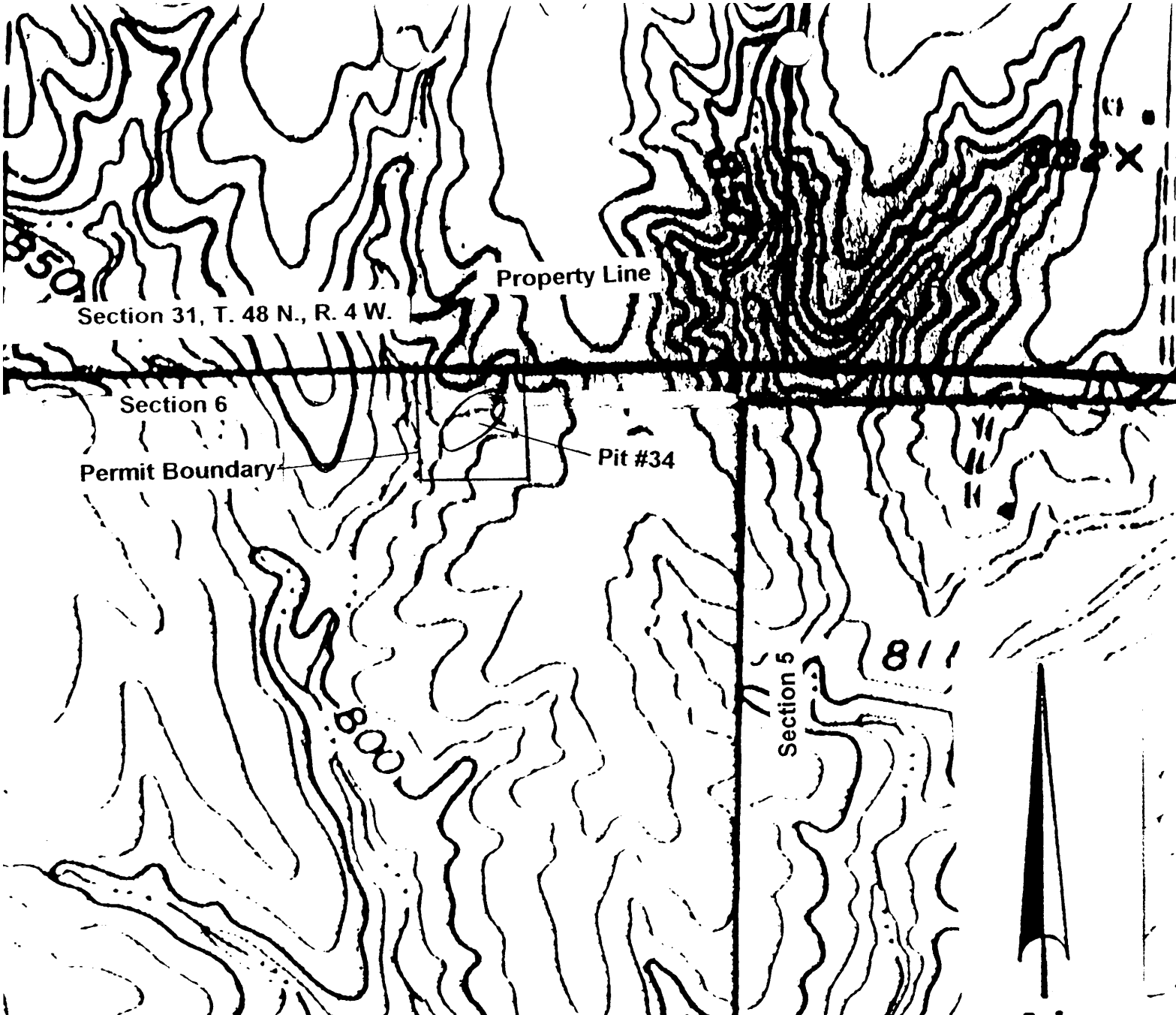
1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>[Signature]</i>		TITLE <i>Mine Supervisor</i>	
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Missouri</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Callaway</i>	
	SUBSCRIBED AND SWORN BEFORE ME, THIS 11 DAY OF <i>January</i> 20 00		USE RUBBER STAMP IN CLEAR AREA BELOW HERE
	NOTARY PUBLIC SIGNATURE <i>Karen S Luther</i>	MY COMMISSION EXPIRES 7-18-03	NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY COMMISSION EXPIRES JULY 18, 2003
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Karen S Luther</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER



RECEIVED
JAN 12 2000

MISSOURI LAND
RECLAMATION COMMISSION



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Chicago-Retort Property

Project:

Land Reclamation Permit

Location Map

Location:

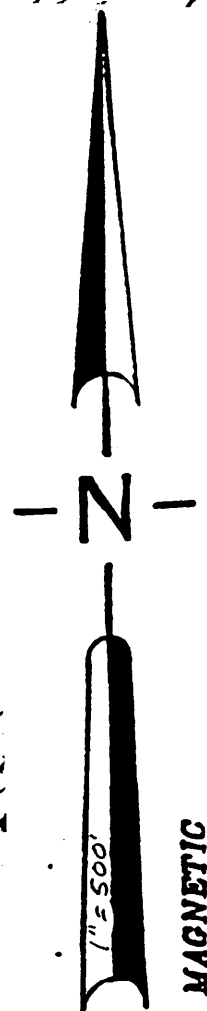
Sect. 6, T. 47 N., R. 4 W.

Montgomery County, Missouri

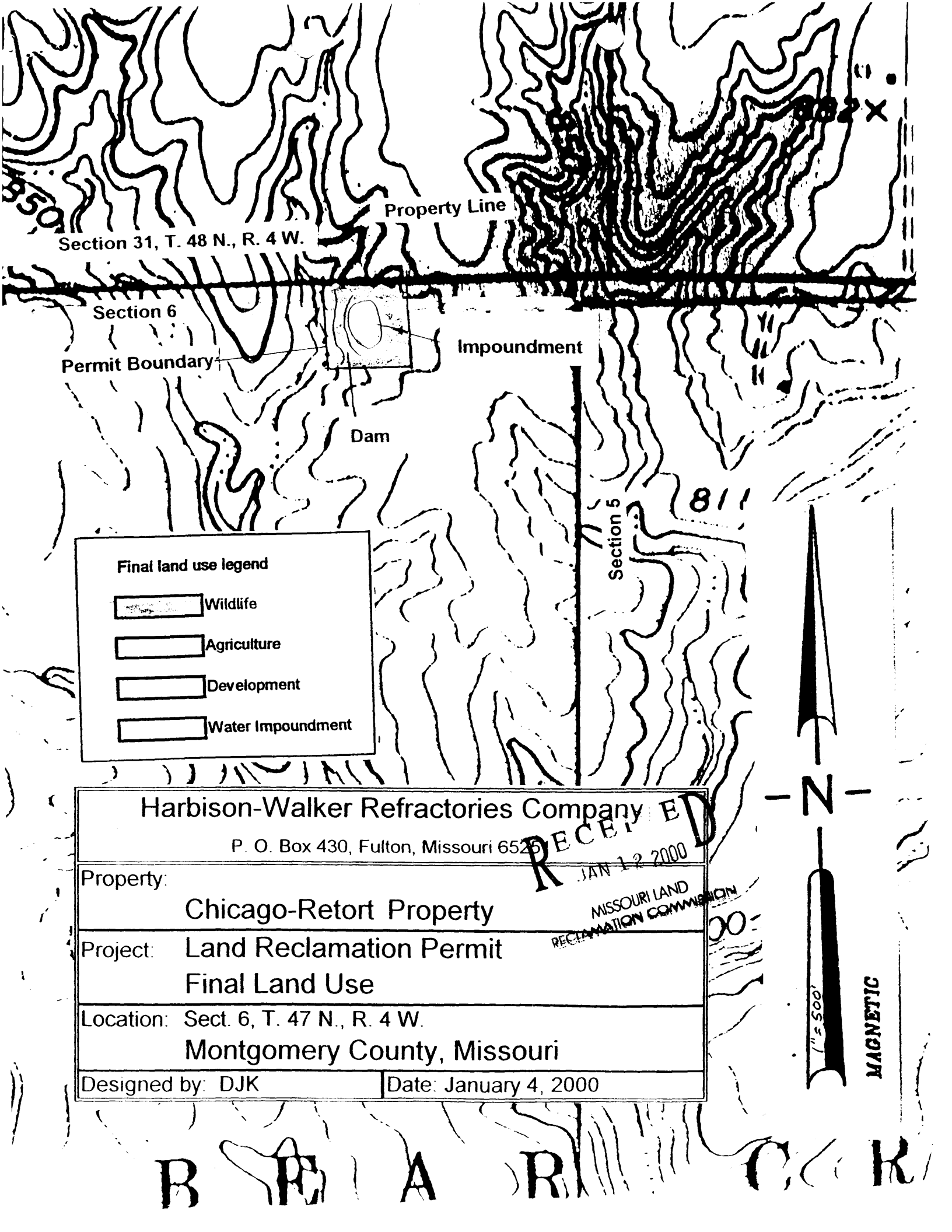
Designed by: DJK

Date: January 4, 2000

RECEIVED
JAN 12 2000
MISSOURI LAND
RECLAMATION COMMISSION



REAR COVER



Property Line

Section 31, T. 48 N., R. 4 W.

Section 6

Permit Boundary

Impoundment

Dam

Final land use legend

 Wildlife

 Agriculture

 Development

 Water Impoundment

Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65256

Property:

Chicago-Retort Property

Project:

Land Reclamation Permit

Final Land Use

Location:

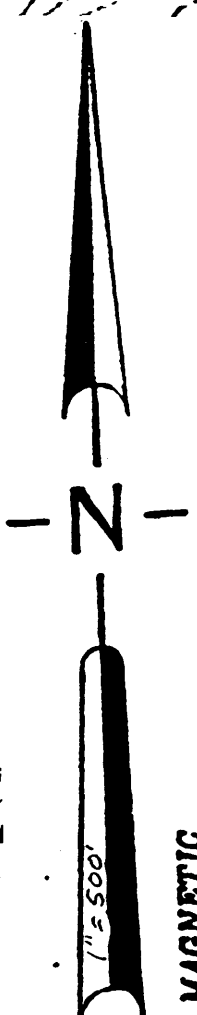
Sect. 6, T. 47 N., R. 4 W.

Montgomery County, Missouri

Designed by: DJK

Date: January 4, 2000

RECEIVED
JAN 12 2000
MISSOURI LAND
RECLAMATION COMMISSION



HARBISON WALKER



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

To be completed for each separate area of disturbance associated with mining operations.

SITE NAME OR NUMBER Craghead		PERMIT NUMBER 77-146 and 78-146	
COMPANY NAME Harbison-Walker Refractories, a division of INDRESCO, Inc.		AUG 28 1992	
COUNTY Callaway	1/4 SECTION Northwest quarter	SECTION 7 RECLAMATION COMMISSION	
TOWNSHIP 46 North	RANGE 9 West	ACRES 3	
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	

RECEIVED

NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE) Amos Haymart		
ADDRESS Route 6		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input checked="" type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT January 20, 1943
<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories		
ADDRESS P. O. Box 430, 1301 Westminster Avenue		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input checked="" type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT
<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2002

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

Craghead

This plan covers an area of approximately three acres total. The permit area was a poorly kept pasture with small branch running through the center. The area has slopes of 3 - 5 percent. The area to the immediate south is woods. A pre-law pit lies adjacent to the permit area on the north side. Harbison-Walker mined these pre-law pits in the 1960s.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

6 - 12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Site mined prior to 1990. No topsoil saved. We will either uncover the buried topsoil or use a soil that is suitable for plant growth.

RECEIVED

AUG 28 1992

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

RECLAMATION COMMISSION

Not applicable.

B. SPOIL**DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL**

All the old spoil will be graded to traversable slopes using scrapers and dozers. Some of the spoil may be pushed in the pit to achieve a 3:1 or less slope.

C. ACID MATERIALS**DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)**

None.

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)**DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS**

The pit has been mined. Not applicable.

YES NO

☐ ☒ Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐ ☒ Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐ ☒ Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.**A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or oats	30		

REVEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or oats	30		
Use sericea lespedeza on slopes.	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

All spoil and pit areas above the anticipated water level will be graded to traversable slopes. An impoundment will be left where the pit is. Terraces will be built as necessary to control erosion.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will begin as soon as practical. Grading is expected to be complete in 1994.

REPLACEMENT OF TOPSOIL

A suitable soil for plant growth will be spread over the disturbed area as soon as grading is complete.

REVEGETATION

All disturbed areas will be seeded in the first spring or fall after final grading.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

6 - 12 inches

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

Agricultural (pasture, cropland, and horticultural)

1

Development (residential, industrial, and recreational)

Water impoundments (for wildlife, agricultural, or development)

2

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT		TITLE	DATE
Jeffrey P. Jahn		Manager- Mining & Exploration	8/17/92
NOTARY PUBLIC EMBOSSEER SEAL	STATE	COUNTY (OR CITY OF ST. LOUIS)	
	Pennsylvania		Allegheny
	SUBSCRIBED AND SWORN BEFORE ME, THIS 17 th DAY OF August, 19 92		
	NOTARY PUBLIC SIGNATURE	MY COMMISSION EXPIRES	
Loretta M. Gottschling		3-20-95	USE RUBBER STAMP IN CLEAR AREA BELOW
NOTARY PUBLIC NAME (TYPED OR PRINTED) Loretta M. Gottschling			
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER

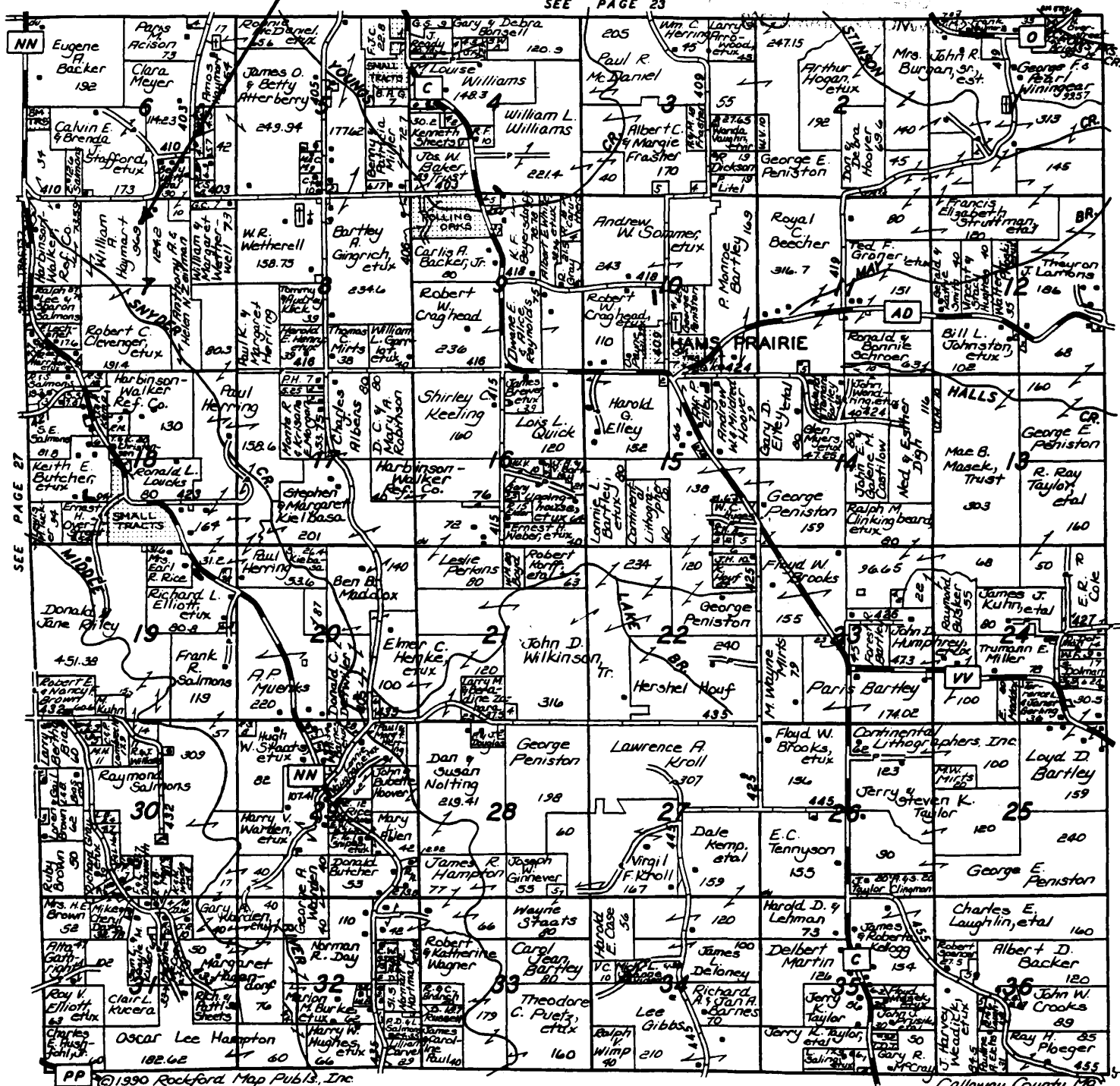
CRAGHEAD

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AUG 28 1992

28 T. 46 N. - ~~R.~~ 9 W.

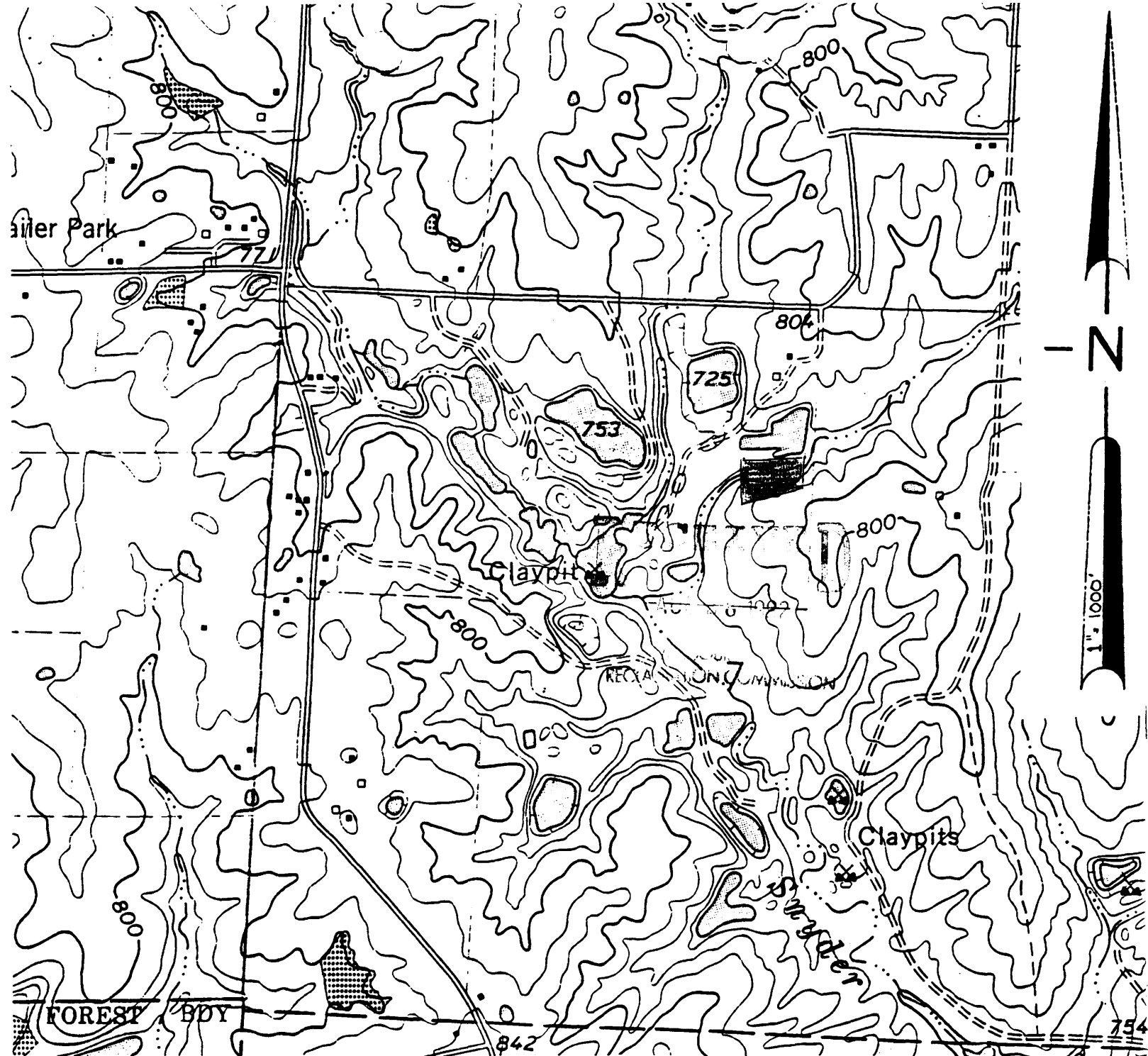
SEE , PAGE 23



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SEE PAGE 33

Callaway County, Mo



INDRESCO

HARBISON-WALKER REFRACTORIES

Division of INDRESCO Inc.

P.O. Box 430, Fulton, Missouri 65251

PROPERTY:

WM. "MIKE" CRAGHEAD

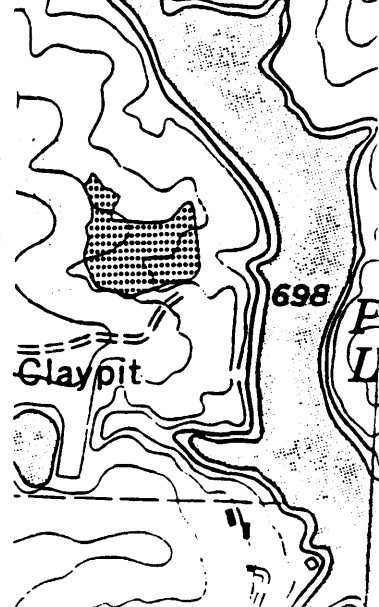
PROJECT:

MISSOURI PERMIT

LOCATION:

CALLAWAY COUNTY

7-23-92 WDO



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

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JAN 12

P.O. BOX 176
JEFFERSON CITY, MO 65102

MISSOURI LAND RECLAMATION COMMISSION PERMIT NUMBER

SITE NAME OR NUMBER Farnberg Pit 1A		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Gasconade	1/4 SECTION SW 1/4	SECTION 30
TOWNSHIP 43 N	RANGE 5 W	ACRES 10
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) Waste Management, Inc.		
ADDRESS Two Westbrook Corporate Center, Suite 1000, P. O. Box 7070		
CITY Westchester	STATE IL	ZIP CODE 60154
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT
<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company		
ADDRESS P.O. Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input checked="" type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT 04/10/59
<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		
NOTE: Each site must be sown on a map and be included in a public notice and an approved mine plan.		

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION

PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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TYPE OF PLAN (CHECK ONE)

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE 12/31/2050

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY

The soil is rocky loam, vegetation consists of open pasture with typical pasture grasses.
Slopes are very gentle to flat.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

-12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Prior to topsoil removal and immediately following any clearing of vegetation, appropriate sediment control measures will be installed including straw bale dikes, silt fences, rock check dams or sediment basins in any combination depending on site specific conditions. Topsoil will be removed using rubber-tired scrapers and/or bulldozers. The topsoil will be stored near the pit within the permitted pit area. We will remove the surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded if necessary with a cover crop to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be stockpiled adjacent to the excavation and within the permit boundary to form a dam to the south east of the pit. After mining is completed the spoil will be graded into a dam or backfilled in the pit as is warranted.

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MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT IF NOT CLEAR ON SITE MAPS

(See site maps)

YES	NO
-----	----

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1	PURPOSE OR LAND USE	B SEEDING OR PLANT TIME
Mixture #1	Development	Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

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MISSOURI LAND
RECLAMATION COMMISSION

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Lespedeza	5		
Wheat or Oats	30		

VEGETATION MIX #2

PURPOSE OR LAND USE

B SEEDING OR PLANTING TIME

Mixture #2

Development

Spring or Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Orchard Grass	10		
Timothy	10		
Korean Lespedeza	6		
Wheat or Oats	30		
Serecea Lespedeza (On Slopes)	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. An impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion. In no case will the reclaimed topography exceed a 3:1 slope.

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RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas or put into a dam to create an impoundment. Final grading of all disturbed areas will be completed within one year after mining. Areas affected, and no longer needed as part of the active operation will be graded within one year of the expiration of the permit during which the disturbance occurred.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and/or bulldozers after mining is completed as described in accordance with MO 10CSR-40.10.050 (A)(10)(A).

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES) -12"

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation:

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

0

Development (residential, industrial, and recreational)

6

Water impoundments (for wildlife, agricultural, or development)

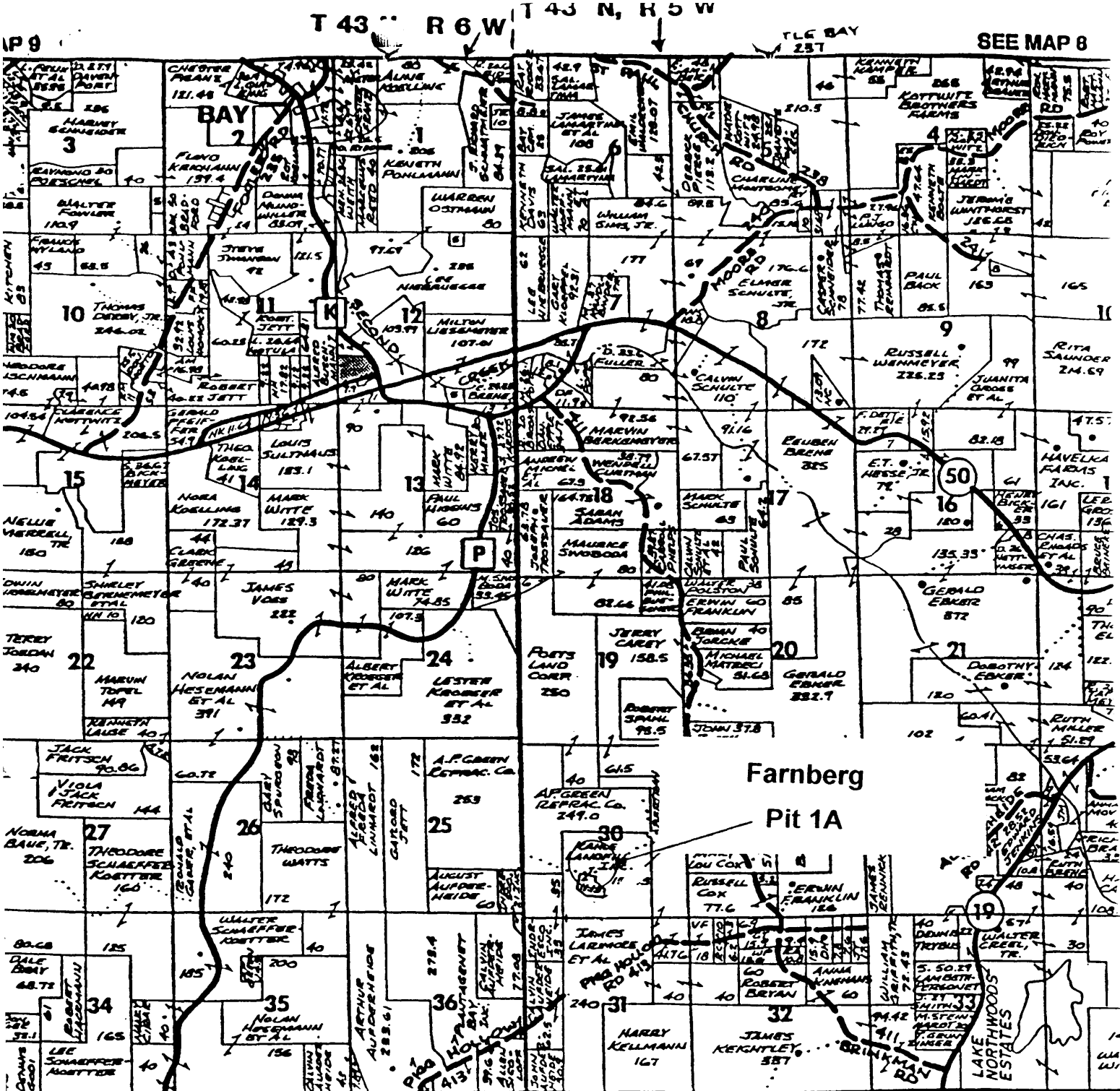
4

RECEIVED
JAN 1 2000
MISSOURI LAND
RECLAMATION COMMISSION

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>G. Paul Z. Z...</i>		TITLE <i>Mine Supervisor</i>	
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Missouri</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Callaway</i>	
	SUBSCRIBED AND SWORN BEFORE ME, THIS 11 DAY OF <i>January</i> 2000		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Karen S. Luther</i>	MY COMMISSION EXPIRES <i>7-18-03</i>	NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY MY COMMISSION EXPIRES JULY 18, 2003
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Karen S Luther</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER



TER STORE INC.
LING OIL CO.

MISSOURI 65062

M SUPPLIES SINCE 1893

21 or 943-6393

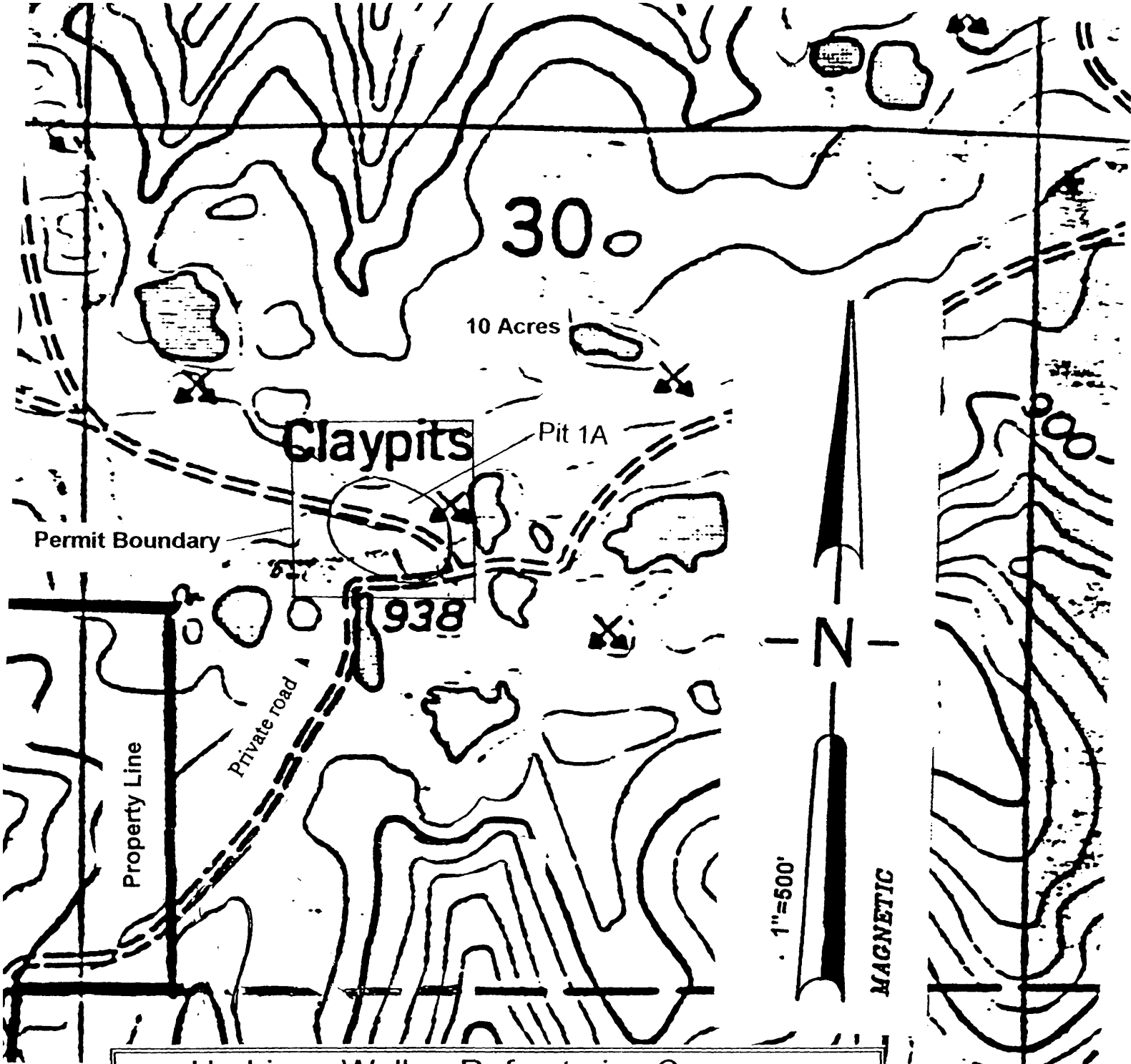


Lubricants

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JAN 18 2000

MISSOURI LAND
RECLAMATION COMMISSION

MAP 11



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Farnberg

Pit 1A

Project:

Land Reclamation Permit

Location Map

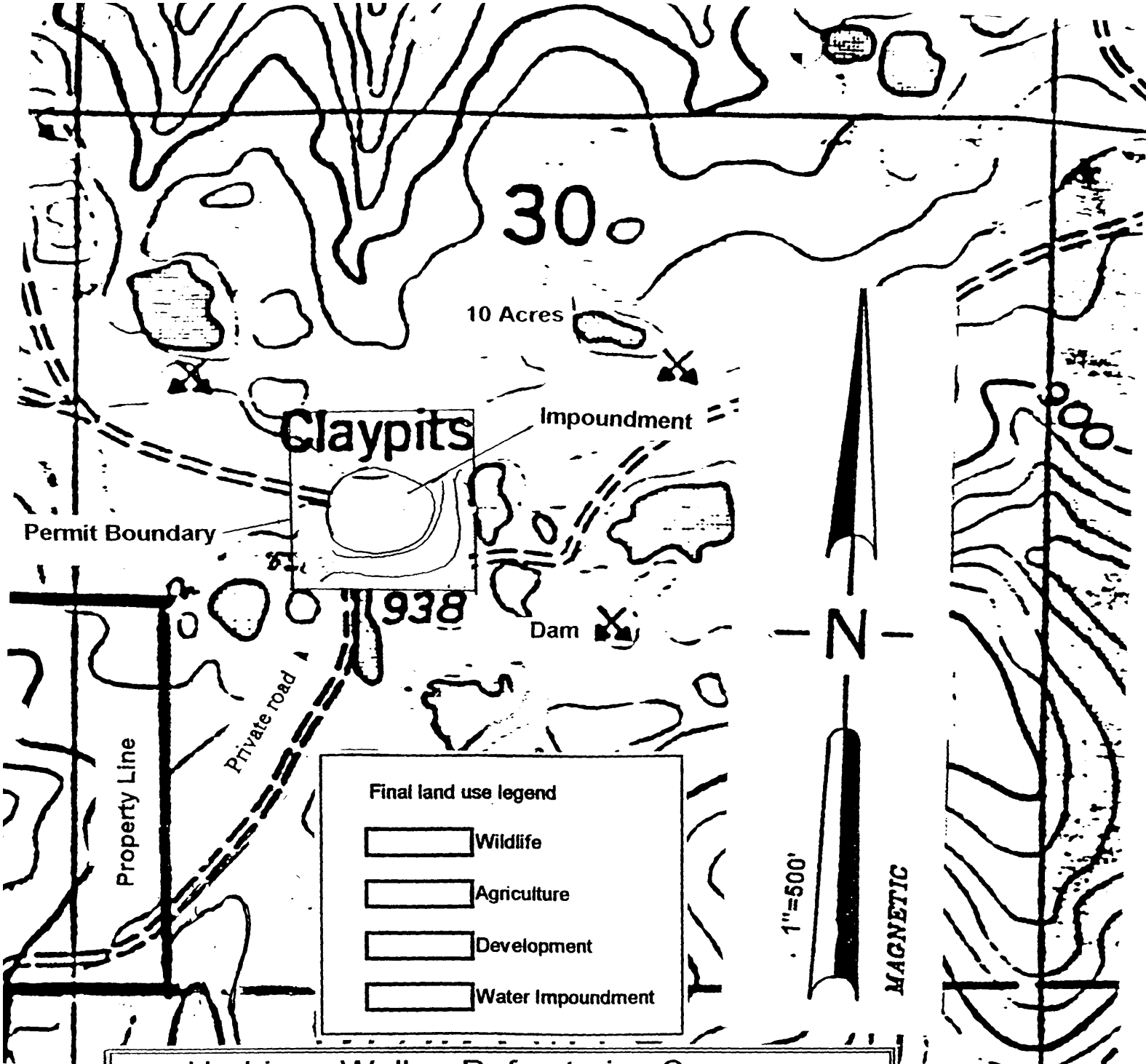
Location: Sect. 30, T. 43 N., R. 5 W.

Gasconade County, Missouri

Designed by: DJK

Date: January 5, 2000

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JAN 12 2000
MISSOURI LAND
RECLAMATION COMMISSION



Final land use legend

	Wildlife
	Agriculture
	Development
	Water Impoundment

Harbison-Walker Refractories Company	
P. O. Box 430, Fulton, Missouri 65251	
Property:	Farnberg Pit 1A
Project:	Land Reclamation Permit Final Land Use
Location:	Sect. 30, T. 43 N., R. 5 W. Gasconade County, Missouri
Designed by: DJK	Date: January 5, 2000

RECEIVED
JAN 12 2000
MISSOURI LAND
RECLAMATION COMMISSION



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

To be completed for each separate area of disturbance associated with mining operations.

SITE NAME OR NUMBER Gerding #5, #6, #8		PERMIT NUMBER 86-146-A1 84-146	
COMPANY NAME Harbison-Walker Refractories, Division of INDRESCO, Inc.			
COUNTY Warren	1/4 SECTION Northeast Quarter		SECTION 6
TOWNSHIP 46 North	RANGE 2 West	ACRES 15	
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	

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AUG 28 1992

MISSOURI DEPARTMENT OF
LAND RECLAMATION COMMISSION

NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE) Jerry Williams et. ux.		
ADDRESS Route 3		
CITY Warrenton	STATE Missouri	ZIP CODE 63383
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input checked="" type="checkbox"/> OTHER (DESCRIBE): Pits have been mined and mineral rights released to above owner.		DATE OF AGREEMENT

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Same as above		
ADDRESS		
CITY	STATE	ZIP CODE
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2002.

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

Gerding #5, #6, #8.

This plan covers a total of 15 acres consisting of three clay pits. Gerding #5 and #6 were wooded hillsides with slopes of 5 to 10 percent. The topsoil was a thick clay. Gerding #8 was a ridge top pasture. Firetower Road is just east of Gerding #8. All three pits have been graded and seeded. All three pits were mined in 1985 and 1986.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Not applicable - In reclamation. Mined prior to 1990.

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MISSOURI DEPARTMENT OF
LAND RECLAMATION COMMISSION

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Not applicable - In reclamation.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Not applicable - in reclamation.

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

Not applicable - in reclamation.

YES NO☐ ☒ Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?☐ ☒ Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)☐ ☒ Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

GERDING

Amendment
9/18/92**RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.****A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Wildlife

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

The seed mix will be drilled in using a regular or no - till drill. A four-wheeler will spread seed on areas not accessible by farm tractor due to trees or brush.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	20		
Serecea Lespedeza	20		
Wheat or Oats	30		

REVEGETATION MIX #2

PURPOSE OR LAND USE

B. SEEDING OR PLANTING TIME

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.**A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or oats	30		

REVEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or oats	30		
Use sericea lespedeza on slopes.	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES

GERDING

Amendment
of 9/18/92**B. GRADING**

DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

A lake was created by each of the mined out pits. All slopes on all the pit and spoil areas are traversable except the south slope of Gerding #8. This slope was left a 2:1 because of the private road along the edge of the pit. If vegetation cannot be established on this slope further grading will be required. ←

This slopes land use will
have to be wildlife based
on the note on the original
8/28/92 copy.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES

GRADING

Done

REPLACEMENT OF TOPSOIL

Done

REVEGETATION

We will seed the areas with inadequate vegetation each year until a suitable stand is achieved.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

12 inches

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation	ESTIMATED ACRES:
Wildlife (forest or other habitat with livestock excluded)	1
Agricultural (pasture, cropland, and horticultural)	9
Development (residential, industrial, and recreational)	
Water impoundments (for wildlife, agricultural, or development)	5

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT		TITLE	DATE
Jeffrey P. Jahn		Manager- Mining & Exploration	8/17/92
NOTARY PUBLIC EMBOSSE SEAL	STATE Pennsylvania	COUNTY (OR CITY OF ST. LOUIS) Allegheny	
SUBSCRIBED AND SWORN BEFORE ME, THIS 17 th DAY OF August, 19 92		USE RUBBER STAMP IN CLEAR AREA BELOW	
NOTARY PUBLIC SIGNATURE Loretta M. Gottschling		MY COMMISSION EXPIRES 3-20-95	
NOTARY PUBLIC NAME (TYPED OR PRINTED) Loretta M. Gottschling			
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER

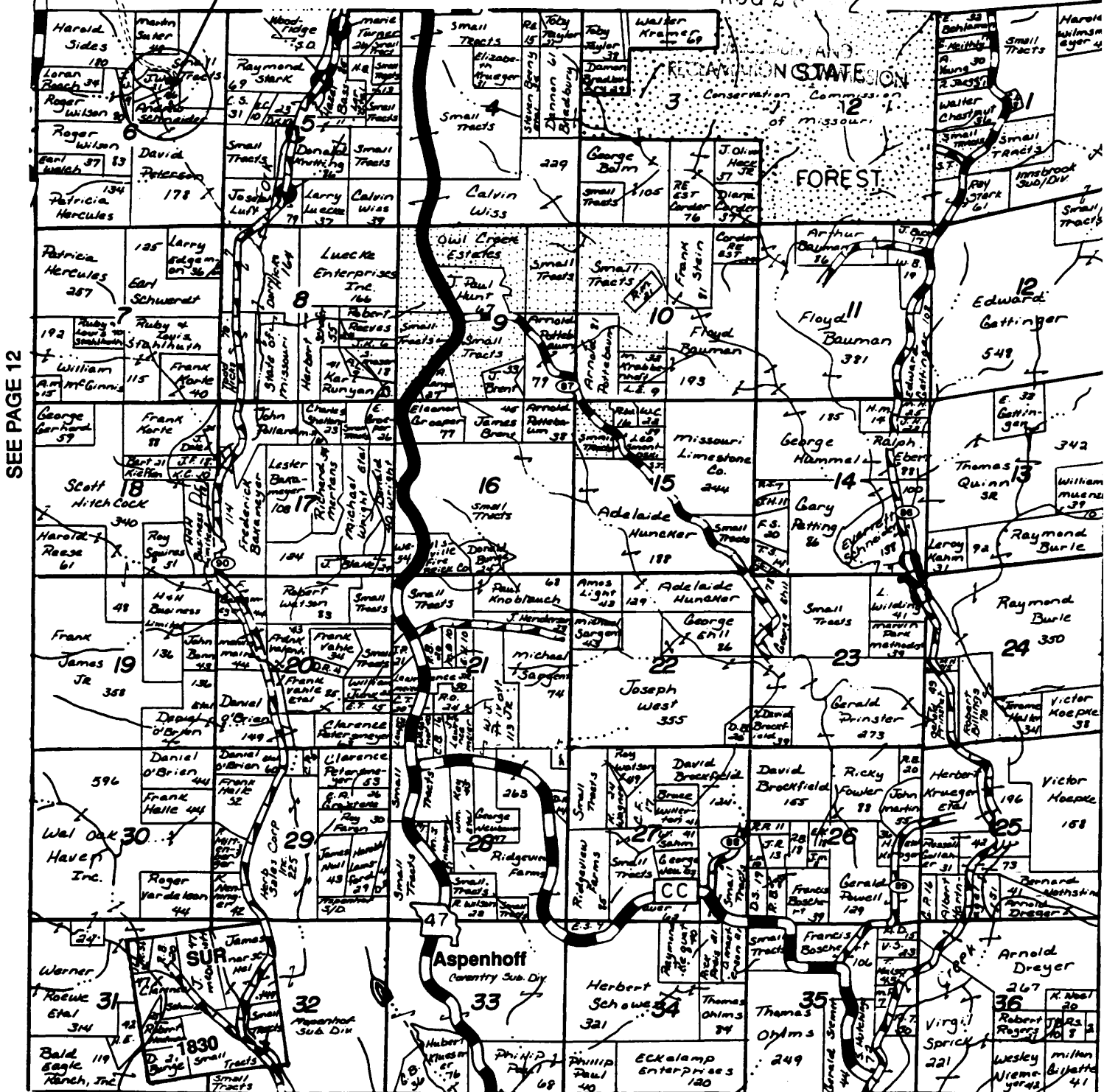
Township 46

Range 2W

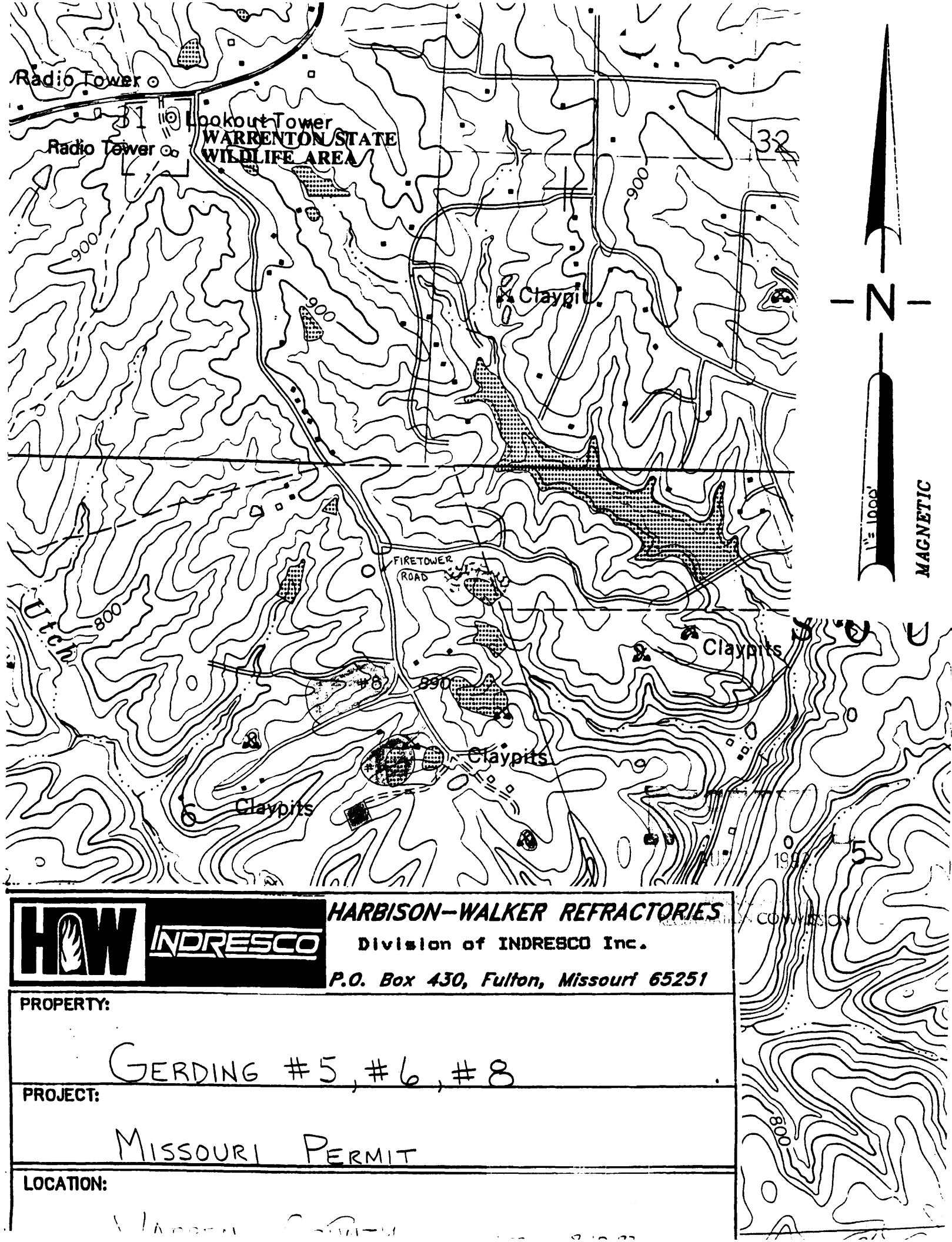
HWY U
FIRE TOWER
ROAD
SEE PAGE 15

GERDING #5, #6, #8

AUG 28 1992



SEE PAGE 19



INDRESCO

HARBISON-WALKER REFRACTORIES

Division of INDRESCO Inc.

P.O. Box 430, Fulton, Missouri 65251

PROPERTY:

GERDING #5, #6, #8

PROJECT:

MISSOURI PERMIT

LOCATION:

Warrenton, Oregon



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

To be completed for each separate area of disturbance associated with mining operations.

SITE NAME OR NUMBER

Hanke #1, #11, #13

PERMIT NUMBER

146

COMPANY NAME

Harbison-Walker Refractories, Division of INDRESCO, Inc.

COUNTY

Warren

1/4 SECTION

Northwest Quarter

SECTION

7

TOWNSHIP

46 North

RANGE

2 West

ACRES

10

RIVER OR STREAM NAME (FOR IN-STREAM ACRES)

MINERAL COMMODITY

Clay

ESTIMATED TONS/YEAR (FOR GRAVEL SITES)

NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE)

Orville Thoroughman et. al.

ADDRESS

8867 ORF Rd.

CITY

O'Fallon

STATE

Missouri

ZIP CODE

63366

SOURCE OF RIGHT TO MINE (CHECK ONE):

☐ MINERAL DEED

☐ LEASE

☐ WARRANTY DEED

☐ VERBAL AGREEMENT

☐ OTHER (DESCRIBE):

DATE OF AGREEMENT

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE)

Harbison-Walker Refractories, Division of INDRESCO, Inc.

ADDRESS

1301 Westminster Ave., P.O. Box 430

CITY

Fulton

STATE

Missouri

ZIP CODE

65251

SOURCE OF RIGHT TO MINE (CHECK ONE):

☒ MINERAL DEED

☐ LEASE

☐ WARRANTY DEED

☐ VERBAL AGREEMENT

☐ OTHER (DESCRIBE):

DATE OF AGREEMENT

December 10, 1910

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2002

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

HANKE #1, #11, #13

This plan covers three clay pits covering a total of 10 acres. All three pits lie on the ridgetop in an area used primarily for pasture. The areas around the pits are relatively flat to gently sloping.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove 6 to 12 inches of topsoil from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Topsoil will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control erosion.

B. SPOIL**DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL**

Spoil from pit #13 will be stored temporarily around the clay pit. Once mining of pit #13 is completed, the spoil from pit #13 and #11 will be stored permanently in pit #11. After the mining of pit #11 is completed spoil from pit #1 will be backfilled into pit #11 until original topography has been restored. Any excess spoil from pit #1 will be used to construct a dam to form a water impoundment.

C. ACID MATERIAL**DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)**

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)**DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS**

Pit #1 is roughly circular in plan view and is located in the center of the 6 acre permit area to the west. Pits #11 and #13 are roughly circular and are in close proximity to each other in the center of the 4 acre permit area to the east.

YES	NO	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will any excavation start at or within fifty feet (50') of any property line? (NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.**A. REVEGETATION (Attach additional sheets, if needed)**REVEGETATION MIX #1
Mixture #1PURPOSE OR LAND USE
PastureB. SEEDING OR PLANTING TIME
Fall or Spring**DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING**

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Rescue Red Clover Wheat or oats	25 5 30		

VEGETATION MIX #2
Mixture #2PURPOSE OR LAND USE
PastureB. SEEDING OR PLANTING TIME
Fall or Spring**DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING**

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or oats Use serecea lespedeza on slopes	10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Pits 11 and 13 will be backfilled with spoil derived from these pits and pit 1. The backfill will be graded to the approximate pre-Mining topography. Pit #1 will be made into a 2 acre impoundment with traversable slopes on the banks and on the dam.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances and as spoil is either backfilled or put into a dam. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber-tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The sites will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

12 inches

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

Agricultural (pasture, cropland, and horticultural)

8

Development (residential, industrial, and recreational)

Water impoundments (for wildlife, agricultural, or development)

2

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

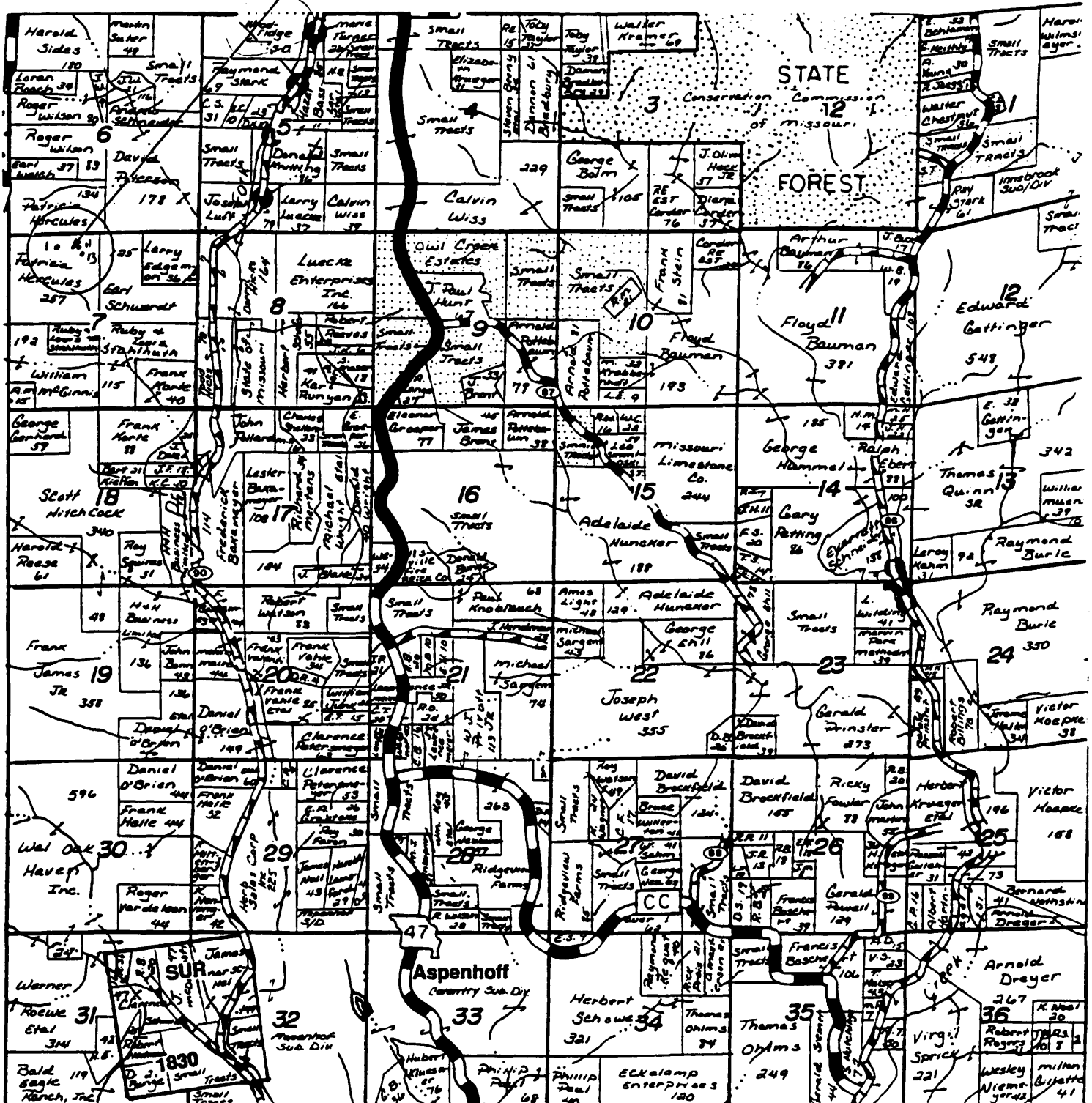
SIGNATURE OF APPLICANT <i>William K. Brown</i> William K. Brown		TITLE Manager- Mining & Minerals Operations	DATE 5-30-95
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Pennsylvania</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Allegheny</i>	
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>30th</i> DAY OF <i>May</i> , 19 <i>95</i>		
	NOTARY PUBLIC SIGNATURE <i>Loretta M. Gottschling</i>	MY COMMISSION EXPIRES <i>3/20/99</i>	USE RUBBER STAMP IN CLEAR AREA BELOW Notary Seal Loretta M. Gottschling, Notary Public Pittsburgh, Allegheny County My Commission Expires March 20, 1999 Member, Pennsylvania Association of Notaries
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Loretta M. Gottschling</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER

***Township 4S
Range 2W***

HANKE 1, 11, 13

SEE PAGE 15

SEE PAGE 12

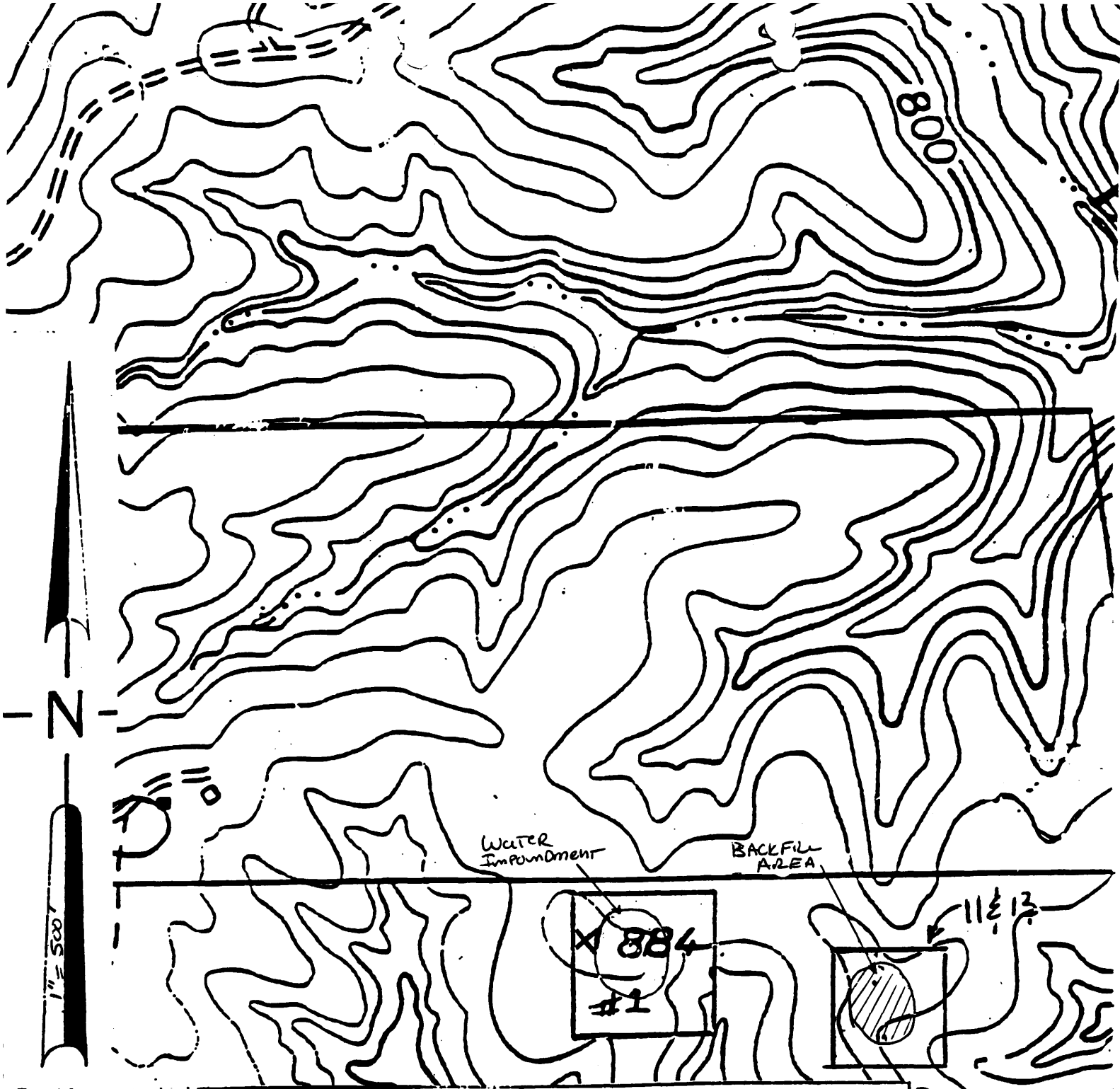


SEE PAGE 19



HW INDRESCO		HARBISON-WALKER REFRACTORIES	
		Division of INDRESCO Inc.	
		P.O. Box 430, Fulton, Missouri 65251	
PROPERTY:			
HANKE #1, #11, #13			
PROJECT:			
MISSOURI PERMIT			
LOCATION:			
WARREN COUNTY			

DJR 5/24/85



INDRESCO

HARBISON-WALKER REFRACTORIES

Division of INDRESCO Inc.

P.O. Box 430, Fulton, Missouri 65251

PROPERTY:

HANKE #1, #11, #13

PROJECT:

MISSOURI PERMIT RECLAIMED LAND USE

LOCATION:

WARREN COUNTY

D710 5/24/95

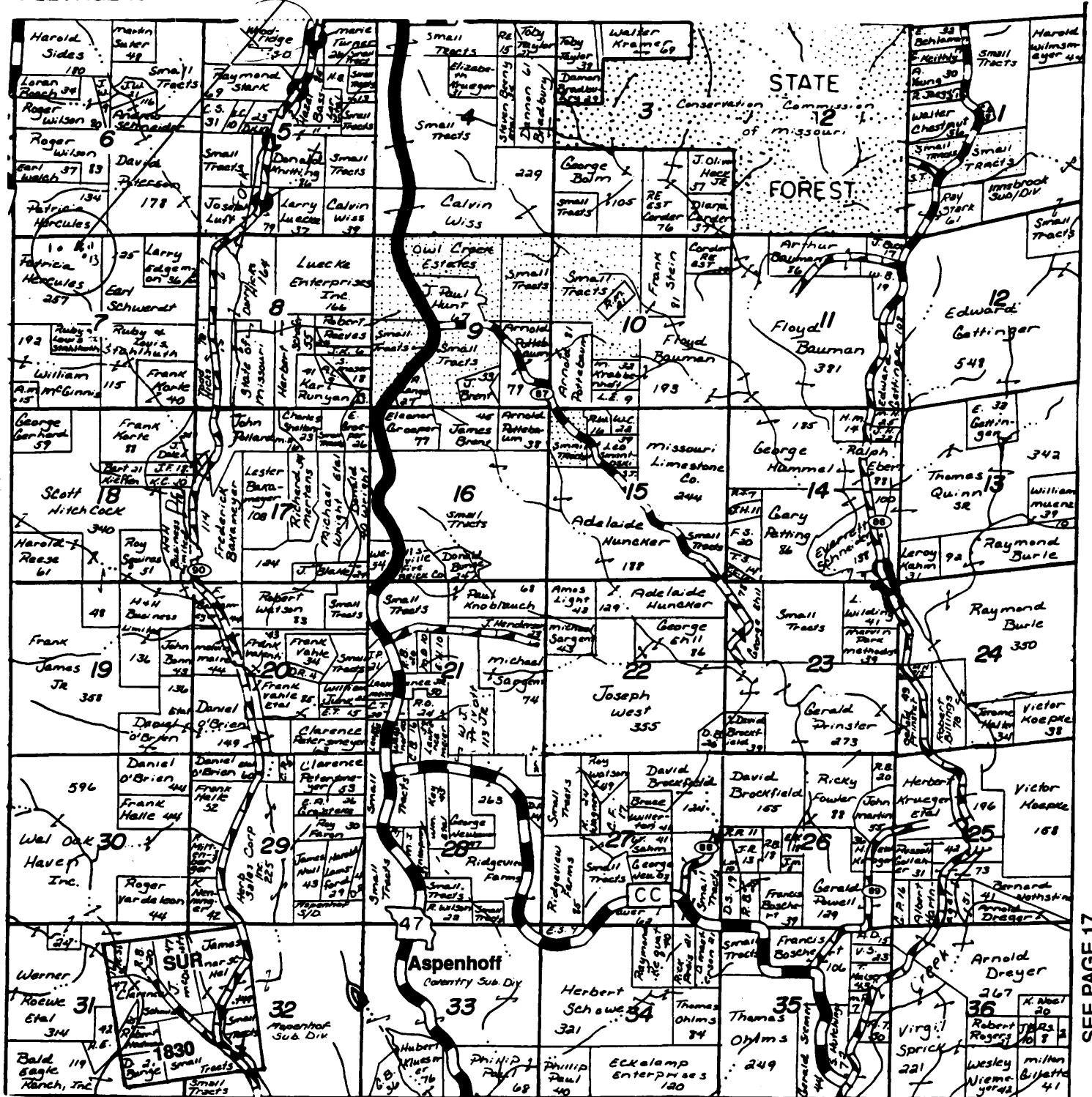
Township 46 Range 2W

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JUN 12 1995
MISSOURI LAND
RECLAMATION COMMISSION

HANKE 1, 11, 13

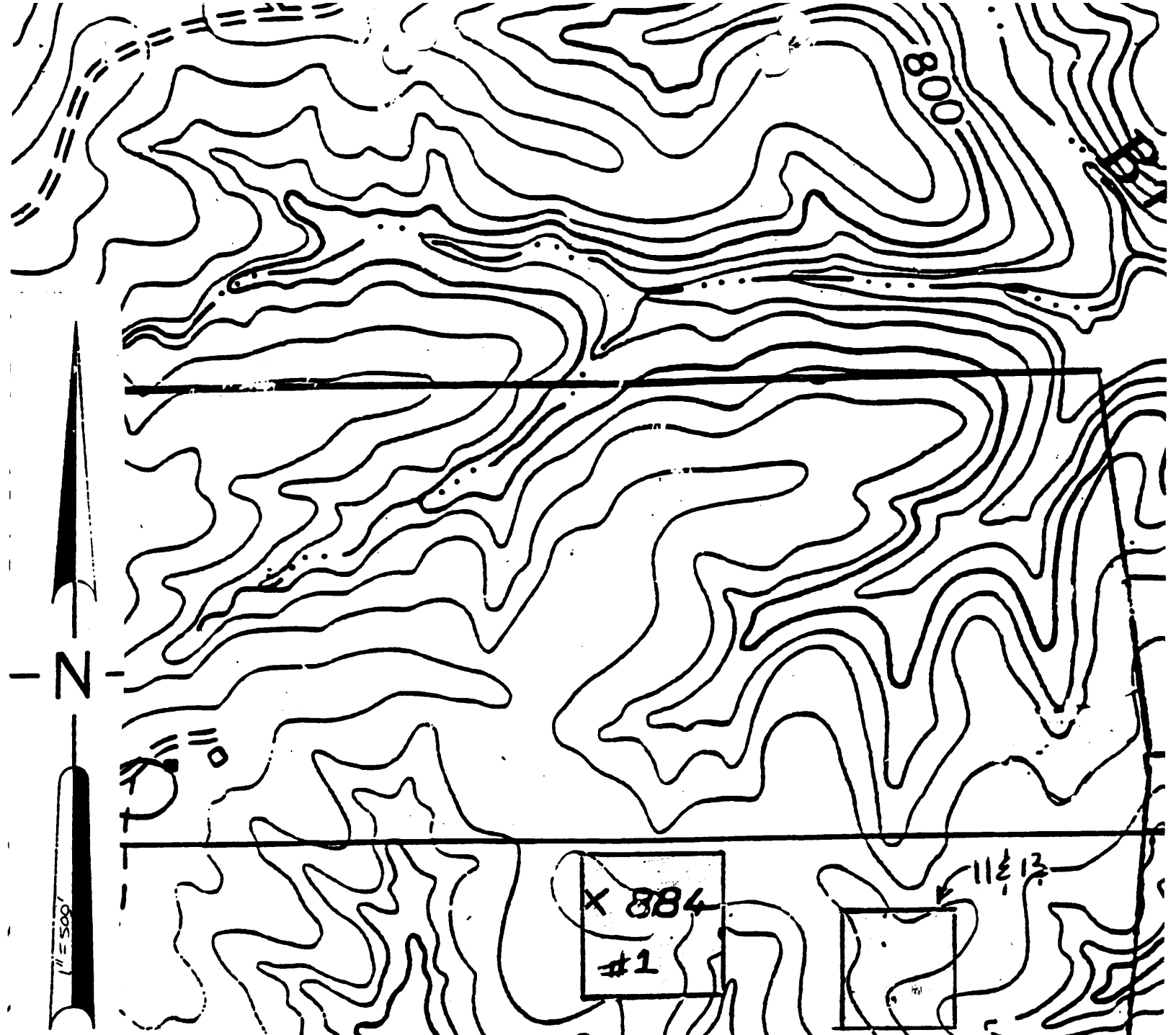
SEE PAGE 15

SEE PAGE 12



SEE PAGE 19

SEE PAGE 17



HARBISON-WALKER REFRACTORIES
Division of INDRESCO Inc.
P.O. Box 430, Fulton, Missouri 65251

PROPERTY:

HANKE #1, #11, #13

PROJECT:

MISSOURI PERMIT

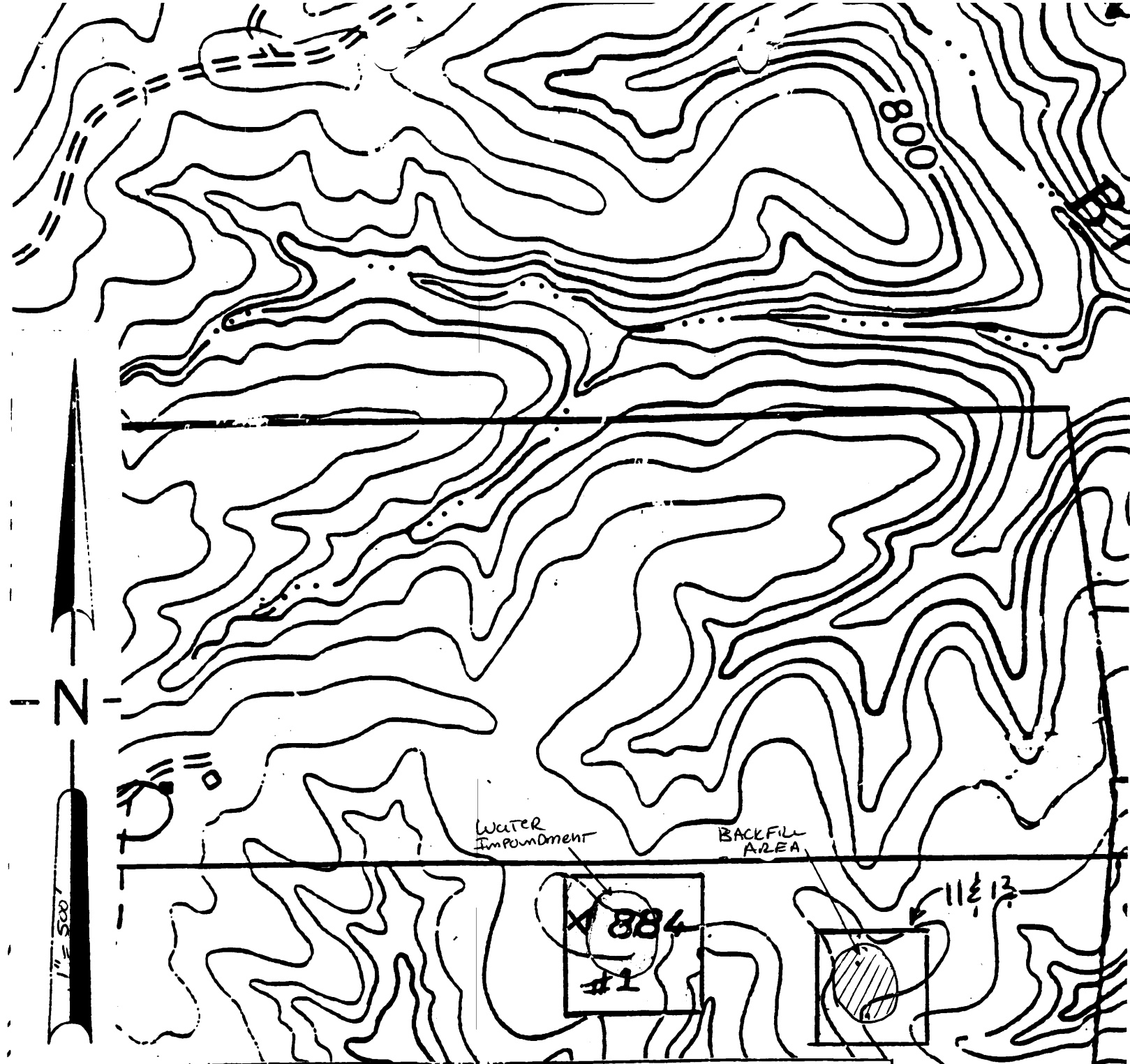
LOCATION:



WARREN COUNTY

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RECLAMATION COMMISSION

DJK 5/24/95





HARBISON-WALKER REFRACTORIES
Division of INDRESCO Inc.
P.O. Box 430, Fulton, Missouri 65251

PROPERTY:

HANKE #1, #11, #13

PROJECT:

MISSOURI PERMIT RECLAIMED LAND USE

LOCATION:

WARREN COUNTY

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MISSOURI LAND
RECLAMATION COMMISSION

DJK 5/24/85

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

RECEIVED
JAN 12 2000

P.O. BOX 176

MISSOURI RECLAMATION COMMISSION
JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER Hensley #6		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Gasconade	1/4 SECTION NE 1/4	SECTION 2
TOWNSHIP 41 N	RANGE 6 W	ACRES 3
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) Mr. Donnie Zeilmann		
ADDRESS 3626 Holzschuh Road		
CITY Bland	STATE MO	ZIP CODE 65014
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company		
ADDRESS P.O. Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input checked="" type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT 05/31/86
NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.		

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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TYPE OF PLAN (CHECK ONE)

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 12/31/2050

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY

The soil is rocky loam, vegetation consists of standing timber with typical underbrush. Slopes are very gentle.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

-12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Prior to topsoil removal and immediately following any clearing of vegetation, appropriate sediment control measures will be installed including straw bale dikes, silt fences, rock check dams or sediment basins in any combination depending on site specific conditions. Topsoil will be removed using rubber-tired scrapers and/or bulldozers. The topsoil will be stored near the pit within the permitted pit area. We will remove the surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded if necessary with a cover crop to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be stockpiled adjacent to the excavation and within the permit boundary to form a dam to the southeast of the pit. After mining is completed the spoil will be graded into a dam or backfilled in the pit as is warranted.

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JAN 18 2000

MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

(See site maps)

YES NO

☒☐

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #1	Development	Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

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MISSOURI LAND
RECLAMATION COMMISSION

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Tall Fescue Red Clover Lespedeza Wheat or Oats	25 5 5 30		

VEGETATION MIX #2	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #2	Development	Spring or Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Orchard Grass Timothy Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING

DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

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2000
SOUTH DAKOTA
RECLAMATION COMMISSION

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A n impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion. In no case will the reclaimed topography exceed a 3:1 slope.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES

GRADING

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas or put into dams to create impoundments. Final grading of all disturbed areas will be completed within one year after mining. Areas affected, and no longer needed as part of the active operation will graded within one year of the expiration of the permit during which the disturbance occurred.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and/or bulldozers after mining is completed as described in accordance whith MO 10CSR-40.10.050 (A)(10)(A).

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)

-12"

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation:

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

2

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

1

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JAN 12 2000
MISSOURI LAND
RECLAMATION COMMISSION

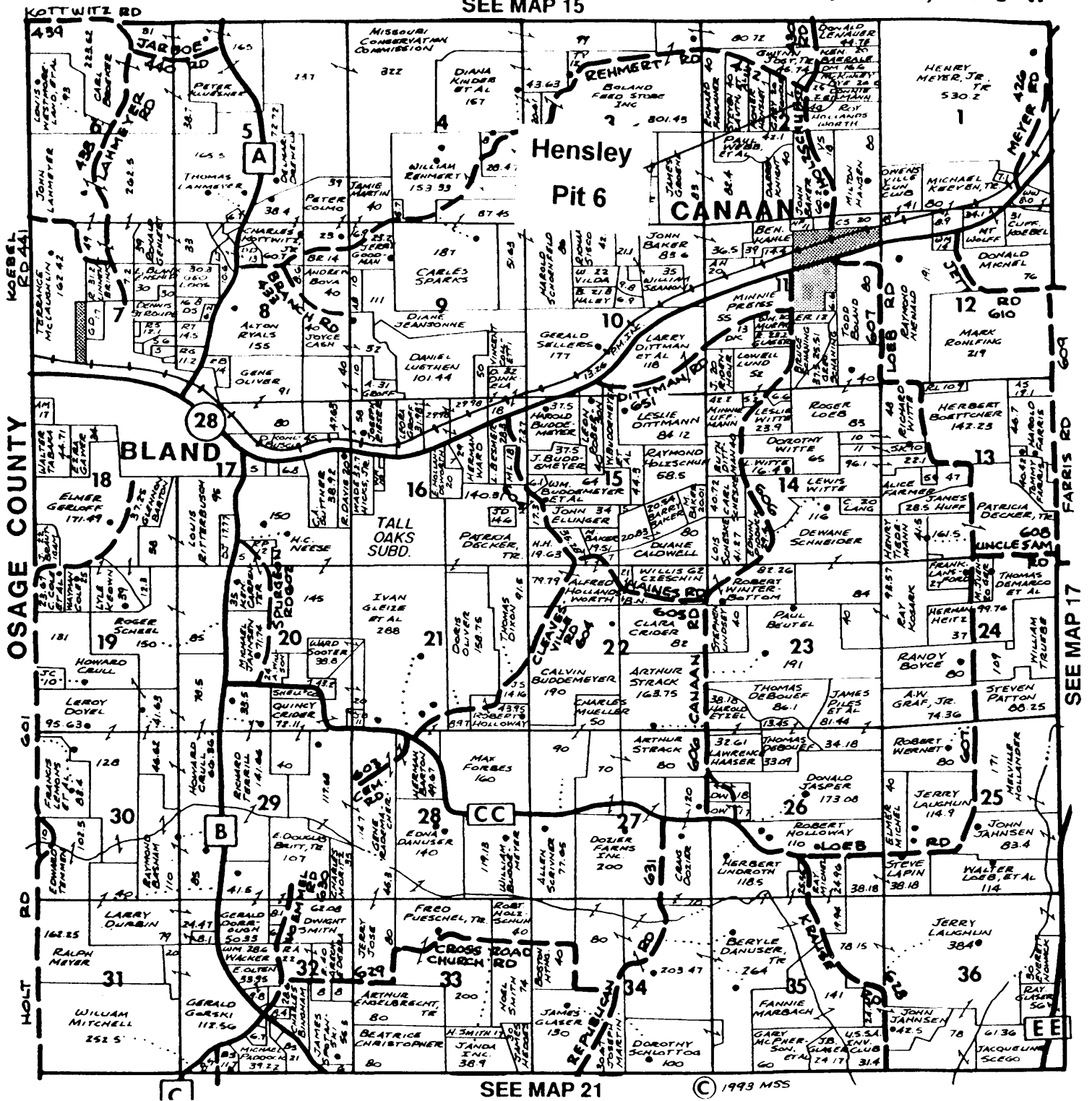
By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>[Signature]</i>		TITLE <i>Mine Supervisor</i>	
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Missouri</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Callaway</i>	
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>11</i> DAY OF <i>January</i> 20 <i>00</i>		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Karen S Luther</i>	MY COMMISSION EXPIRES <i>7-18-03</i>	NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY MY COMMISSION EXPIRES JULY 18, 2003
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Karen S Luther</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER

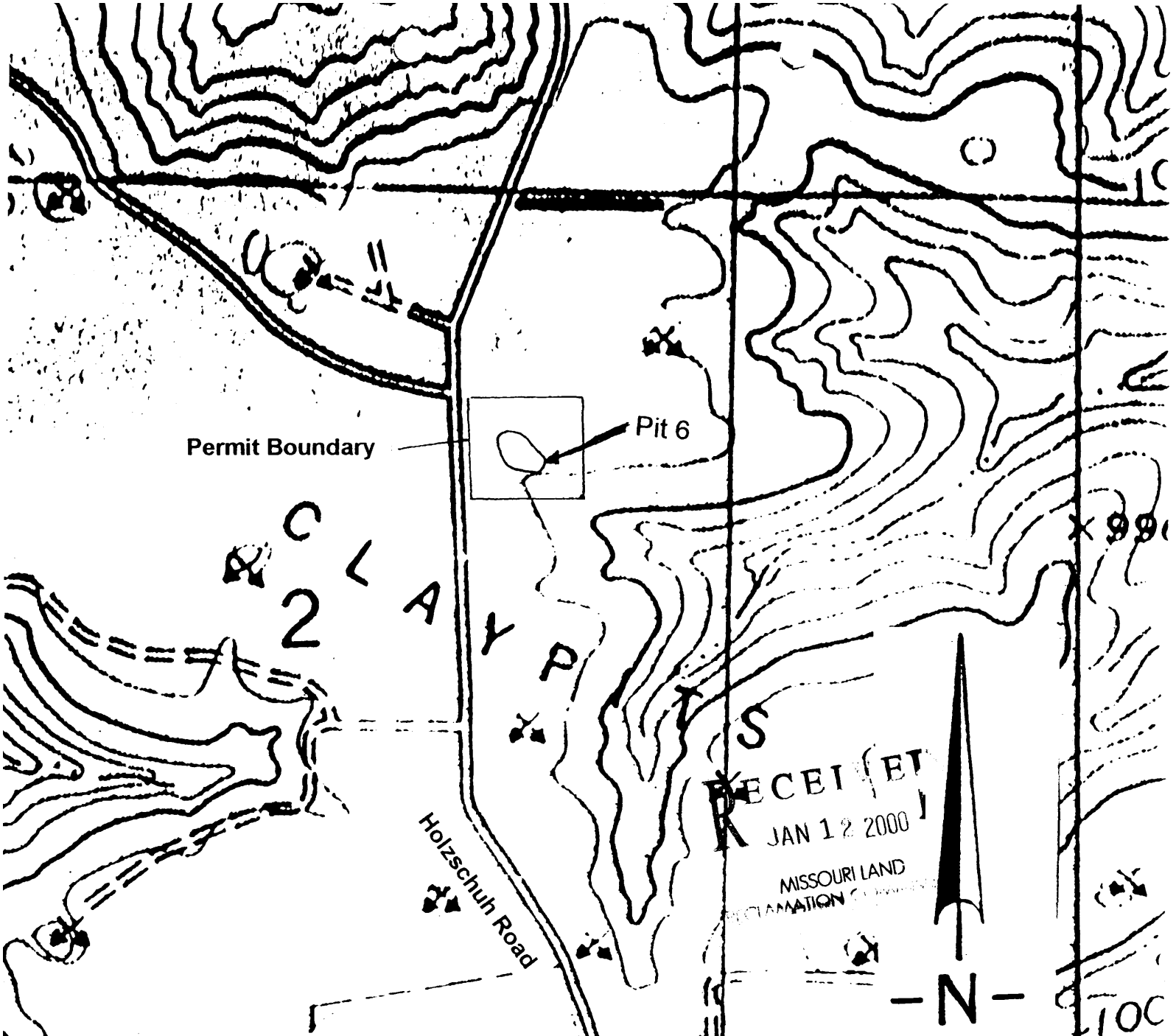
SEE MAP 15

T 41 N, R 6 W



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MISSOURI LAND
RECLAMATION COMMISSION



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Hensley

Pit 6

Project:

Land Reclamation Permit

Location Map

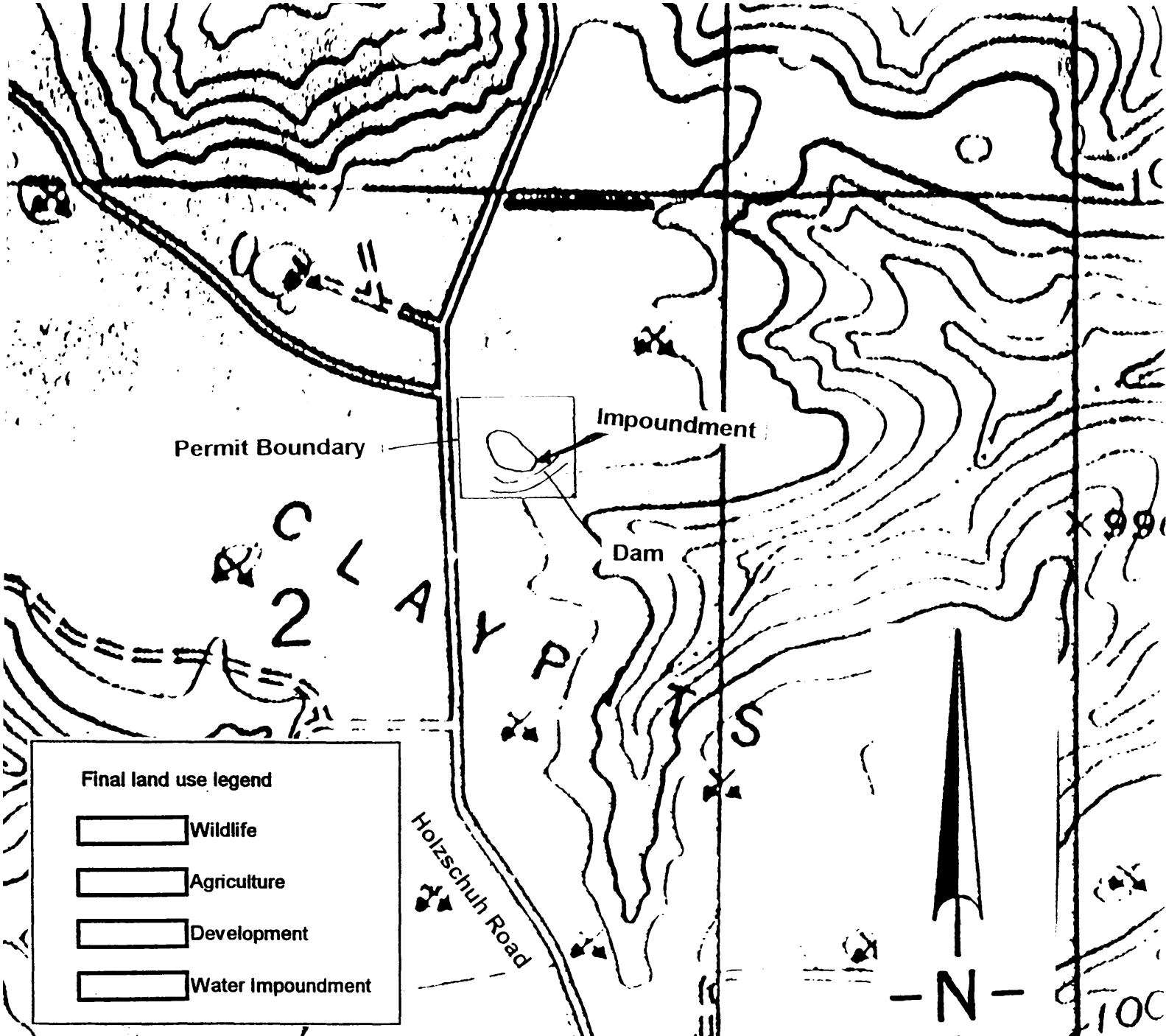
Location:

Sect. 2, T. 41 N., R. 6 W.

Gasconade County, Missouri

Designed by: DJK

Date: January 3, 2000



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Hensley

Pit 6

Project:

Land Reclamation Permit

Final Land Use

Location:

Sect. 2, T. 41 N., R. 6 W.

Gasconade County, Missouri

Designed by: DJK

Date: January 3, 2000

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MISSOURI LAND RECLAMATION COMMISSION

D

- N -

1" = 500'
MAGNETIC

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

RECEIVED
FEB 11 1980

MISSOURI LAND RECLAMATION COMMISSION
P.O. BOX 176
JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER Joseph Polston Property		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Warren	1/4 SECTION SW 1/4	SECTION 7
TOWNSHIP 47 North	RANGE 2 West	ACRES 9
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) William McGinnis		
ADDRESS 24 Portland Drive		
CITY St. Louis	STATE Missouri	ZIP CODE 63131
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company		
ADDRESS P.O. Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input checked="" type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT September 10, 1910

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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FEB 11 1998

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: 03/01/2008

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY.

The site is currently in brush and timber and is being used for wildlife. The pit occurs along the ridge line where the topography is relatively flat. Topsoil in the area is fair.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be removed using bull-dozers and rubber tired scrapers. Spoil will be backfilled as mining progresses.

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FEB 11 1998

MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

The pits are located along the center line of the ridge and are irregularly shaped in plan view.

YES

NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.02(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1	PURPOSE OR LAND USE	B. SEEDING OR PLANT TIME
Mixture #1	Agriculture	Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

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MISSOURI LAND
RECLAMATION COMMISSION

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Wheat or Oats	25 5 30		

VEGETATION MIX #2	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #2	Agriculture	Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A small impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

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MISSOURI LAND
RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas or put into a dam to create an impoundment. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)

12

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation:

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

8

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

1

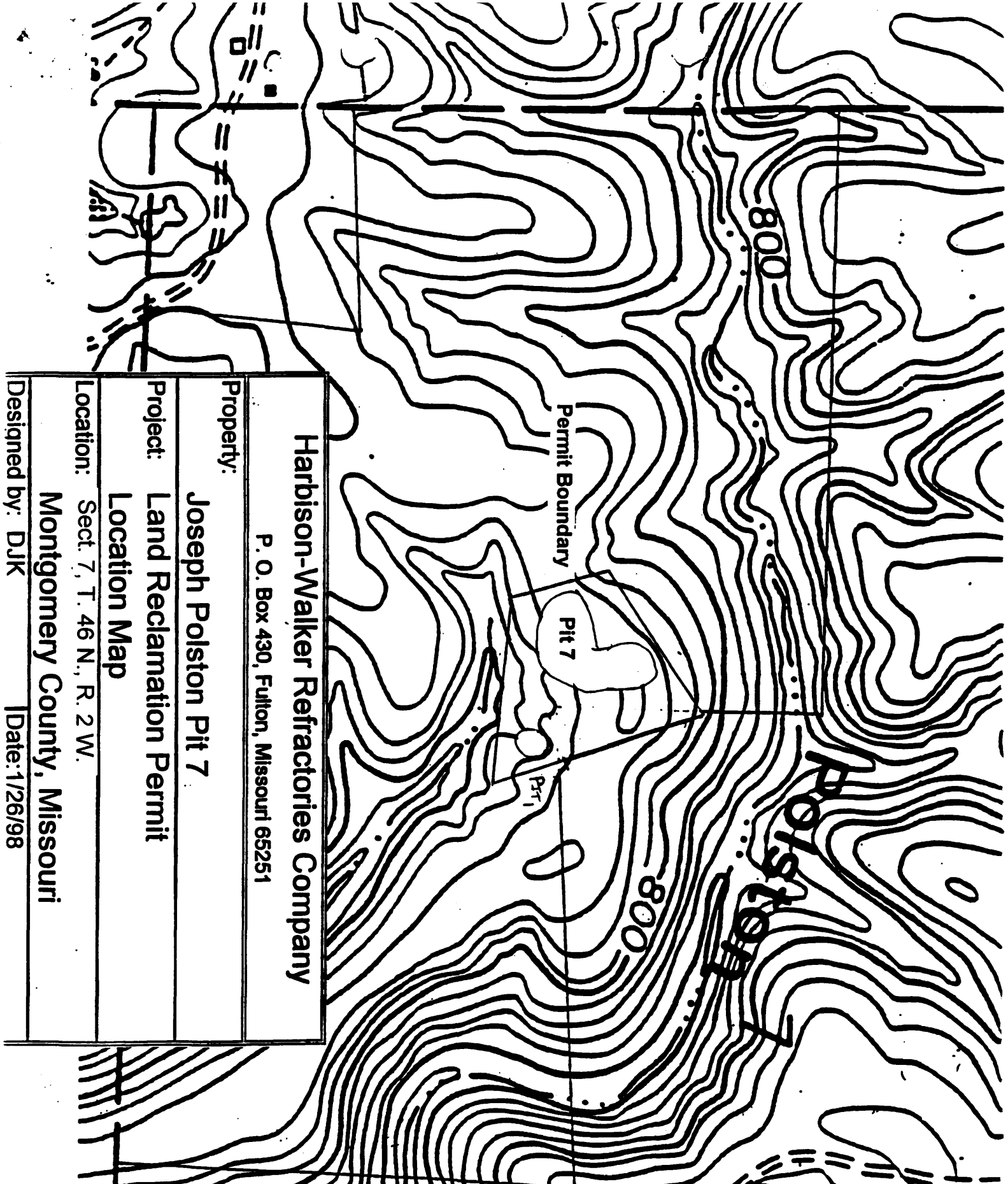
By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

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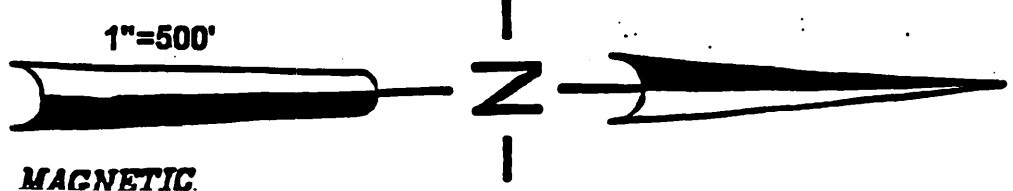
MISSOURI LAND
RECLAMATION COMMISSION

SIGNATURE OF APPLICANT <i>William K. Brown</i>		TITLE <i>Vice President Minerals</i>	
NOTARY PUBLIC EMBOSSER SEAL	STATE <i>Pennsylvania</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Allegheny</i>	
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>2ND</i> DAY OF <i>February</i> 19 <i>98</i>		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Kathleen S. Fuchs</i>	MY COMMISSION EXPIRES <i>11/29/2001</i>	<div>Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 29, 2001 Member, Pennsylvania Association of Notaries</div>
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Kathleen S. Fuchs</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>[Signature]</i>	DATE APPROVED <i>9-2-98</i>	PERMIT NUMBER <i>1-16</i>	



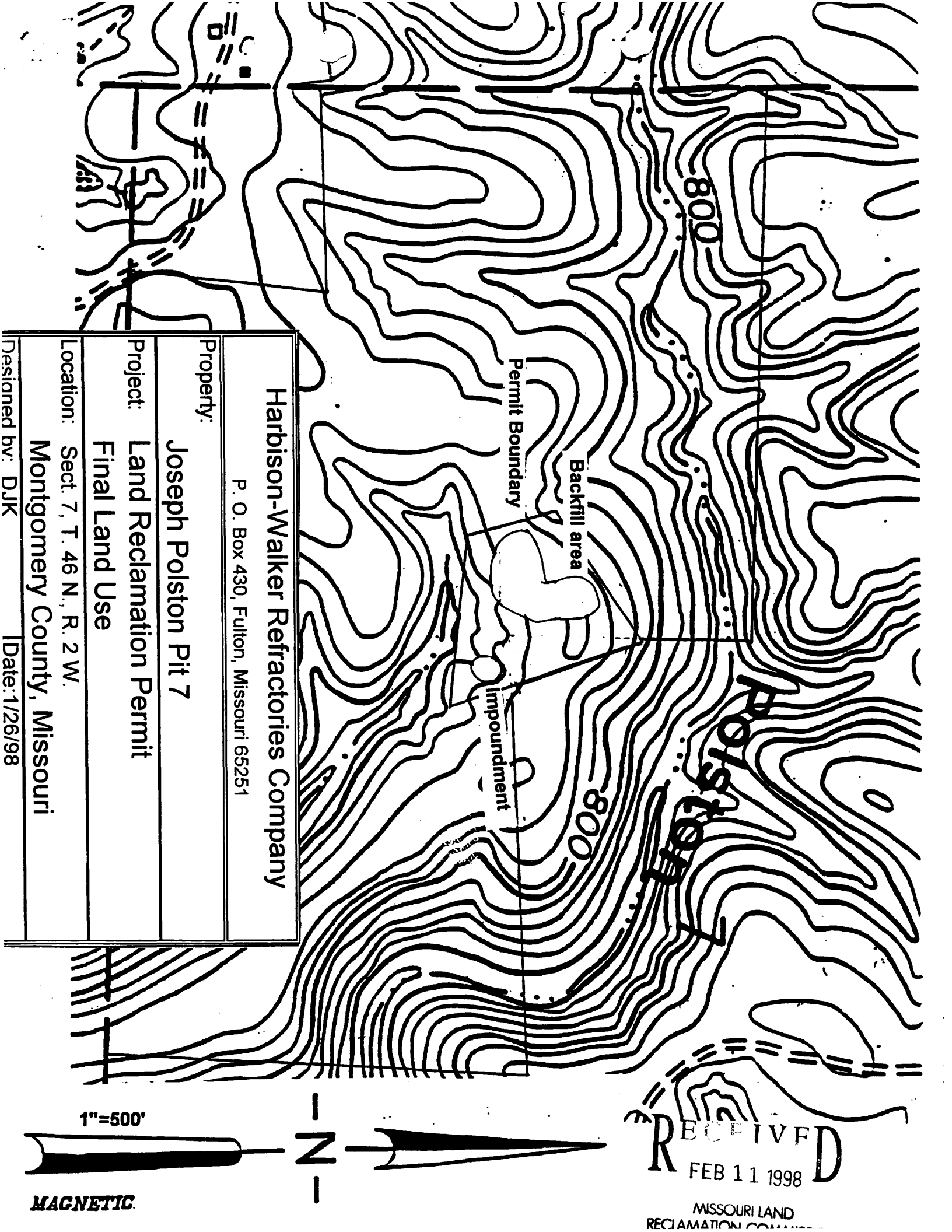
Harbison-Walker Refractories Company	
P. O. Box 430, Fulton, Missouri 65251	
Property:	
Joseph Polston Pit 7	
Project:	
Land Reclamation Permit	
Location Map	
Location: Sect. 7, T. 46 N., R. 2 W.	
Montgomery County, Missouri	
Designed by: DJK	Date: 1/26/98

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POLSTON 7



MISSOURI LAND
RECLAMATION COMMISSION

MAGNETIC



800

Backfill area

Permit Boundary

Impoundment

800

Polston 7

Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Joseph Polston Pit 7

Project:

Land Reclamation Permit

Final Land Use

Location:

Sect. 7, T. 46 N., R. 2 W.

Montgomery County, Missouri

Designed by: DJK

Date: 1/26/98

1"=500'



MAGNETIC

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FEB 11 1998

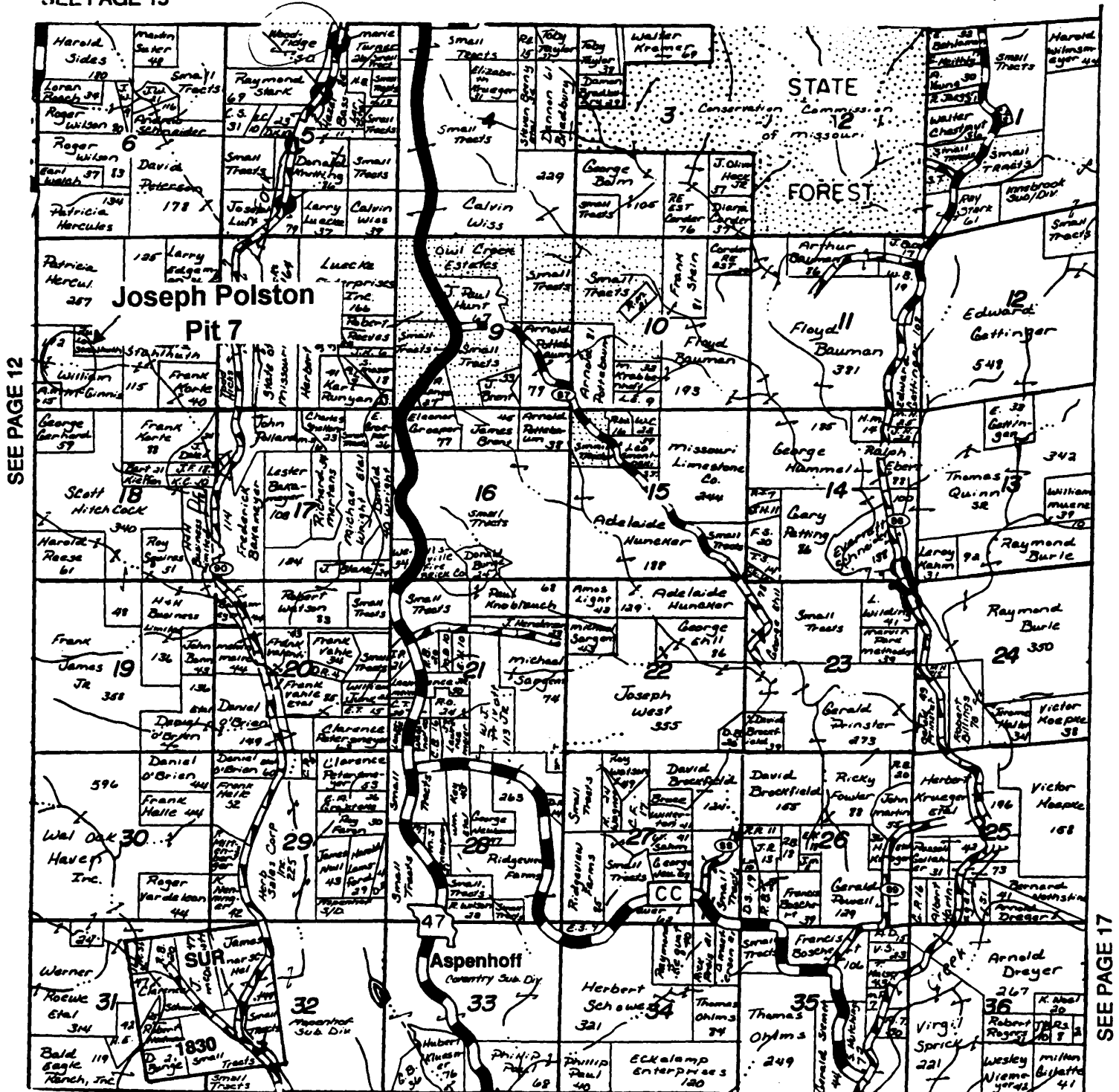
MISSOURI LAND
RECLAMATION COMMISSION

Township 16 Range 2W

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MISSOURI LAND
RECLAMATION COMMISSION

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SEE PAGE 19

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

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P.O. BOX 176
JEFFERSON CITY, MO 65102

MISSOURI LAND

RECLAMATION COMMISSION

SITE NAME OR NUMBER

Juern Pit 1

PERMIT NUMBER

146

COMPANY NAME

Harbison-Walker Refractories Company

COUNTY

Warren

1/4 SECTION

SE

SECTION

20

TOWNSHIP

46 North

RANGE

1 West

ACRES

4

RIVER OR STREAM NAME (FOR IN-STREAM ACRES)

MINERAL COMMODITY

Fire Clay

ESTIMATED TONS/YEAR (FOR GRAVEL SITES)

NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE)

Frank Stefanski

ADDRESS

880 Pebble Lane

CITY

Florissant

STATE

Missouri

ZIP CODE

63033

SOURCE OF RIGHT TO MINE (CHECK ONE):

- ☐ MINERAL DEED
☐ WARRANTY DEED
☐ OTHER (DESCRIBE):

- ☐ LEASE
☐ VERBAL AGREEMENT

DATE OF AGREEMENT

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE)

Harbison-Walker Refractories Company

ADDRESS

P.O. Box 430

CITY

Fulton

STATE

Missouri

ZIP CODE

65251

SOURCE OF RIGHT TO MINE (CHECK ONE):

- ☐ MINERAL DEED
☐ WARRANTY DEED
☐ OTHER (DESCRIBE):

- ☒ LEASE
☐ VERBAL AGREEMENT

DATE OF AGREEMENT

4/29/1938

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION

PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 8/1/2009

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY.

The site is currently in brush and timber and is being used for wildlife. The pit is in a small draw where the topography is well drained. Topsoil in the area is fair.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be removed using bull-dozers and rubber tired scrapers. Spoil will either be backfilled or used as fill for a da

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MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

The pit is located in a shallow draw and is elongate in plan view.

YES

NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.02(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

MISSOURI LAND
RECLAMATION COMMISSION

REVEGETATION MIX #1

PURPOSE OR LAND USE

B. SEEDING OR PLANTING TIME

Mixture #1

Development

Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Wheat or Oats	25 5 30		

VEGETATION MIX #2

PURPOSE OR LAND USE

B. SEEDING OR PLANTING TIME

Mixture #2

Development

Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING

DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

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MISSOURI LAND
RECLAMATION COMMISSION

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A small impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas, natural depressions or put into a dam to create an impoundment. Final grading of disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)

12

D. USE OF LAND WHEN RECLAIMED*Estimate acreage of each land use below, after reclamation:***ESTIMATED ACRES:**

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

0

Development (residential, industrial, and recreational)

5

Water impoundments (for wildlife, agricultural, or development)

1

RECEIVED
AUG 05 1998

By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>Will T. [Signature]</i>		TITLE <i>Manager-Mining</i>	
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Pennsylvania</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Allegheny</i>	
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>14th</i> DAY OF <i>July</i> 19 <i>98</i>		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Kathleen S. Fuchs</i>	MY COMMISSION EXPIRES <i>11/29/01</i>	<div style="border: 1px solid black; padding: 5px;"> Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 29, 2001 Member, Pennsylvania Association of Notaries </div>
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Kathleen S. Fuchs</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>[Signature]</i>		DATE APPROVED <i>7-2-98</i>	PERMIT NUMBER <i>146</i>

Township 46

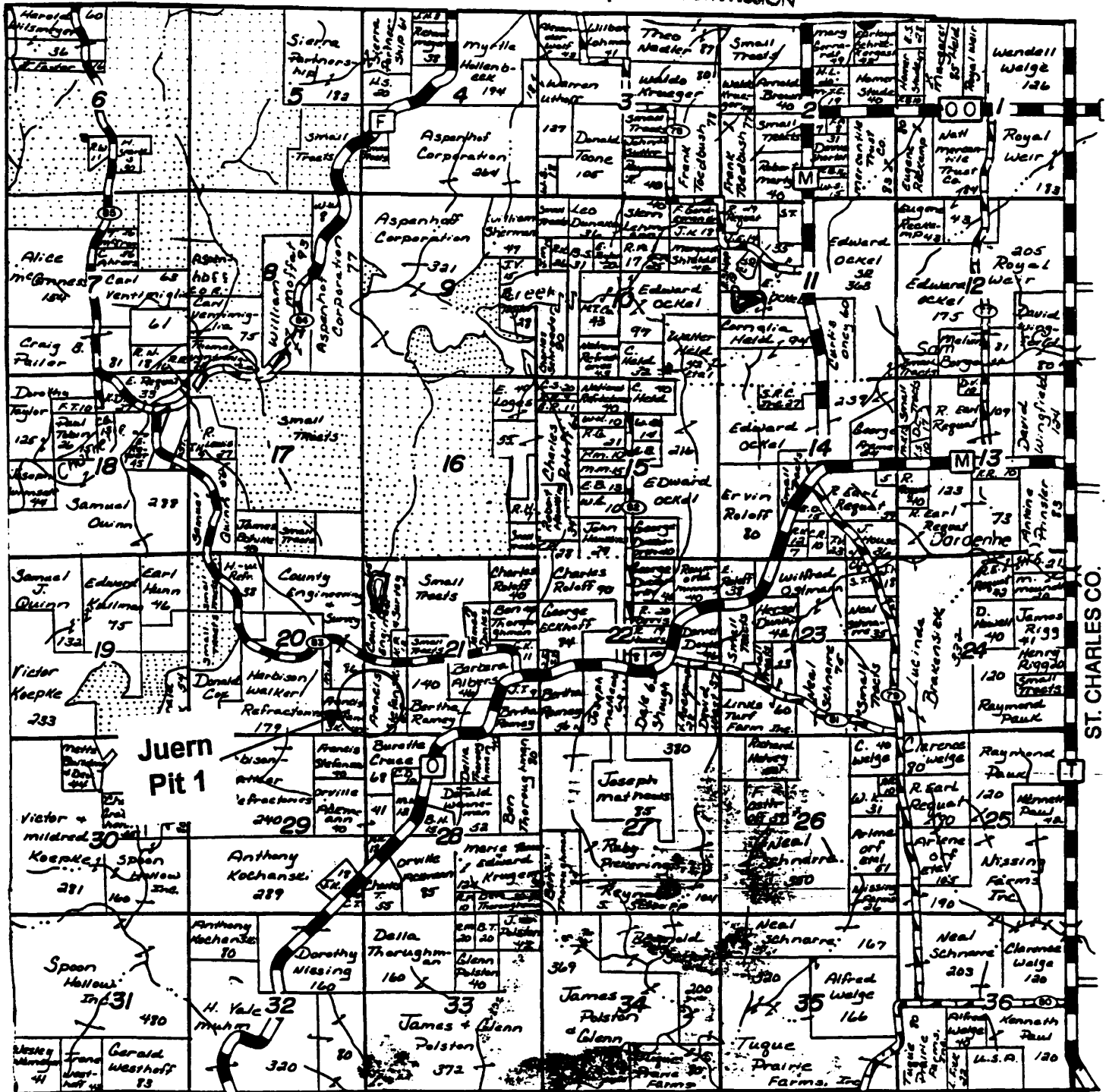
Range 1W

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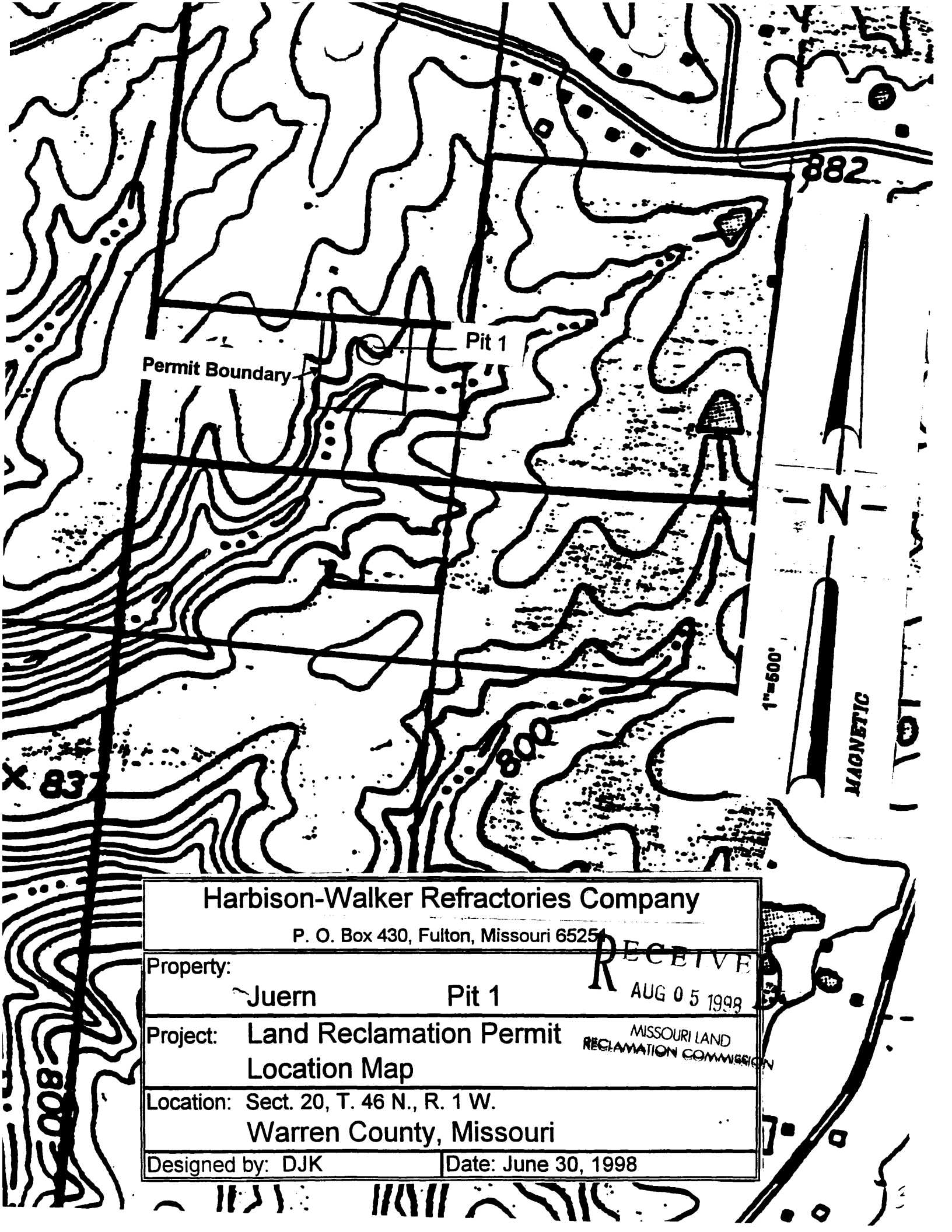
SEE PAGE 13

MISSOURI LAND
RECLAMATION COMMISSION

SEE PAGE 16



SEE PAGE 20



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Juern

Pit 1

Project: Land Reclamation Permit
Location Map

Location: Sect. 20, T. 46 N., R. 1 W.

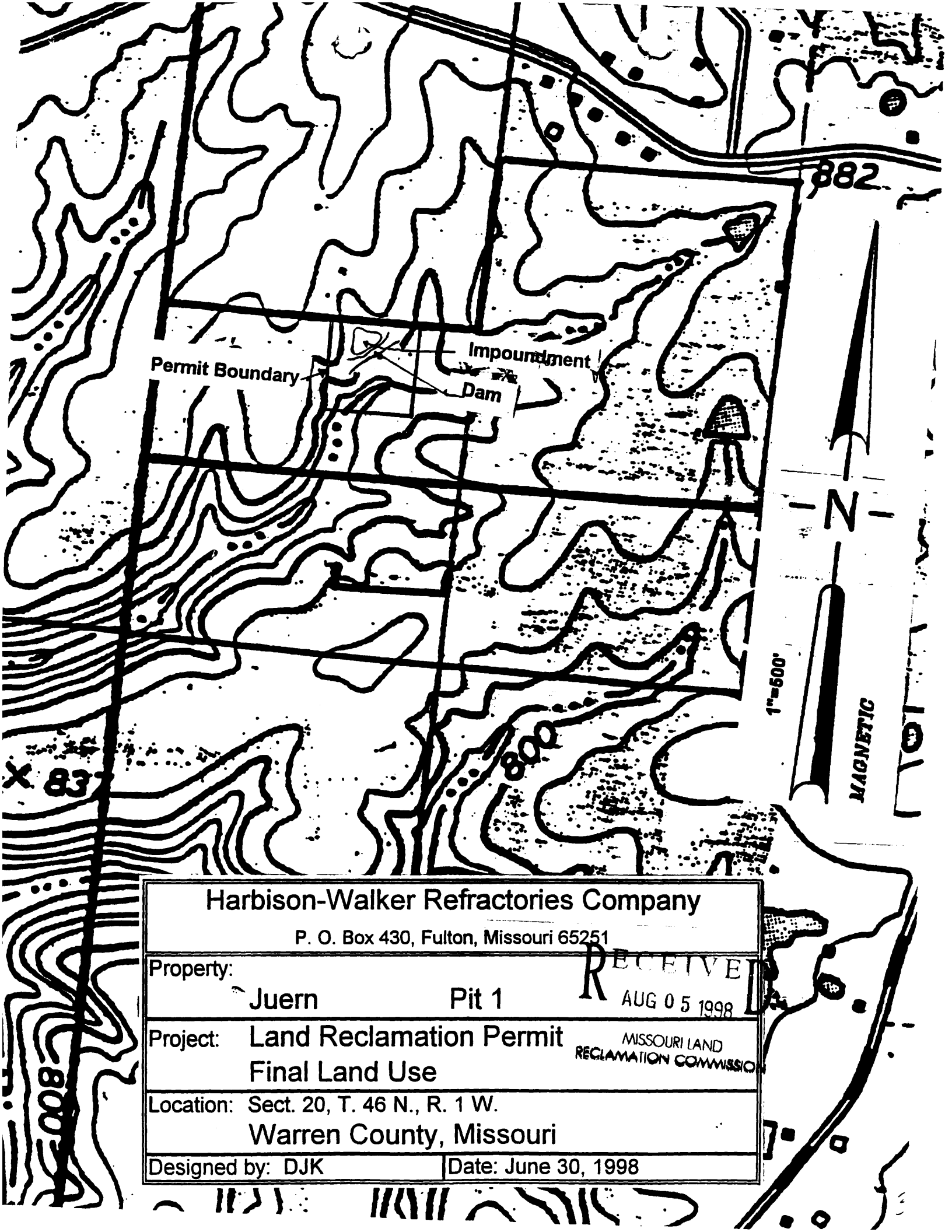
Warren County, Missouri

Designed by: DJK

Date: June 30, 1998

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AUG 05 1998

MISSOURI LAND
RECLAMATION COMMISSION



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Juern

Pit 1

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AUG 05 1998

Project: Land Reclamation Permit
Final Land Use

MISSOURI LAND
RECLAMATION COMMISSION

Location: Sect. 20, T. 46 N., R. 1 W.

Warren County, Missouri

Designed by: DJK

Date: June 30, 1998

MISSOURI DEPARTMENT OF NATURAL RESOURCES

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LAND RECLAMATION COMMISSION

APR 28 2003

P.O. BOX 176
JEFFERSON CITY, MO 65102

SITE INFORMATION FORM

SITE NAME OR NUMBER K. M. Craghead 1A		MISSOURI LAND RECLAMATION COMMISSION	PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company			
COUNTY Callaway	1/4 SECTION NE 1/4		SECTION 32
TOWNSHIP 47 N	RANGE 9 W		ACRES 8
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY Fire Clay			ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) Mr. Herbert M. Craghead			
ADDRESS 3415 75th Street			
CITY Lubbock	STATE TX		ZIP CODE 79413
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):			DATE OF AGREEMENT 11/30/1946
<input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT			
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company			
ADDRESS 1301 Westminster Avenue			
CITY Fulton	STATE Missouri		ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):			DATE OF AGREEMENT 11/30/1946
<input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT			
NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.			

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 12/31/2050

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY.

The site is a gently sloping field used primarily for cattle pasture. There is an old clay pit near the south-east portion of the new pit.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

-12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Prior to topsoil removal and immediately following any clearing of vegetation, appropriate sediment control measures will be installed including straw bale dikes, silt fences, rock check dams or sediment basins in any combination depending on site specific conditions. Topsoil will be removed using rubber-tired scrapers and/or bulldozers. The topsoil will be stored near the pit within the permitted pit area. We will remove the surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded if necessary with a cover crop to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be stockpiled adjacent to the excavation and within the permit boundary to form a dam to the north of the pit. After mining is completed the spoil will be graded into a dam or backfilled in the pit as is warranted.

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MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

(See site maps)

YES

NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.0(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #1	Agricultural	Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

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MISSOURI LAND
RECLAMATION COMMISSION

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Lespedeza Wheat or Oats	25 5 5 30		

VEGETATION MIX #2	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #2	Agricultural	Spring or Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Timothy Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. Terraces and diversions will be constructed to control surface runoff.

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MISSOURI LAND
RECLAMATION COMMISSION**C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES****GRADING**

Grading of the site will be performed when back-filling operations have been completed.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and/or bulldozers after mining is completed.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES) -12"**D. USE OF LAND WHEN RECLAIMED***Estimate acreage of each land use below, after reclamation:***ESTIMATED ACRES:**

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

5

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

3

RECEIVED

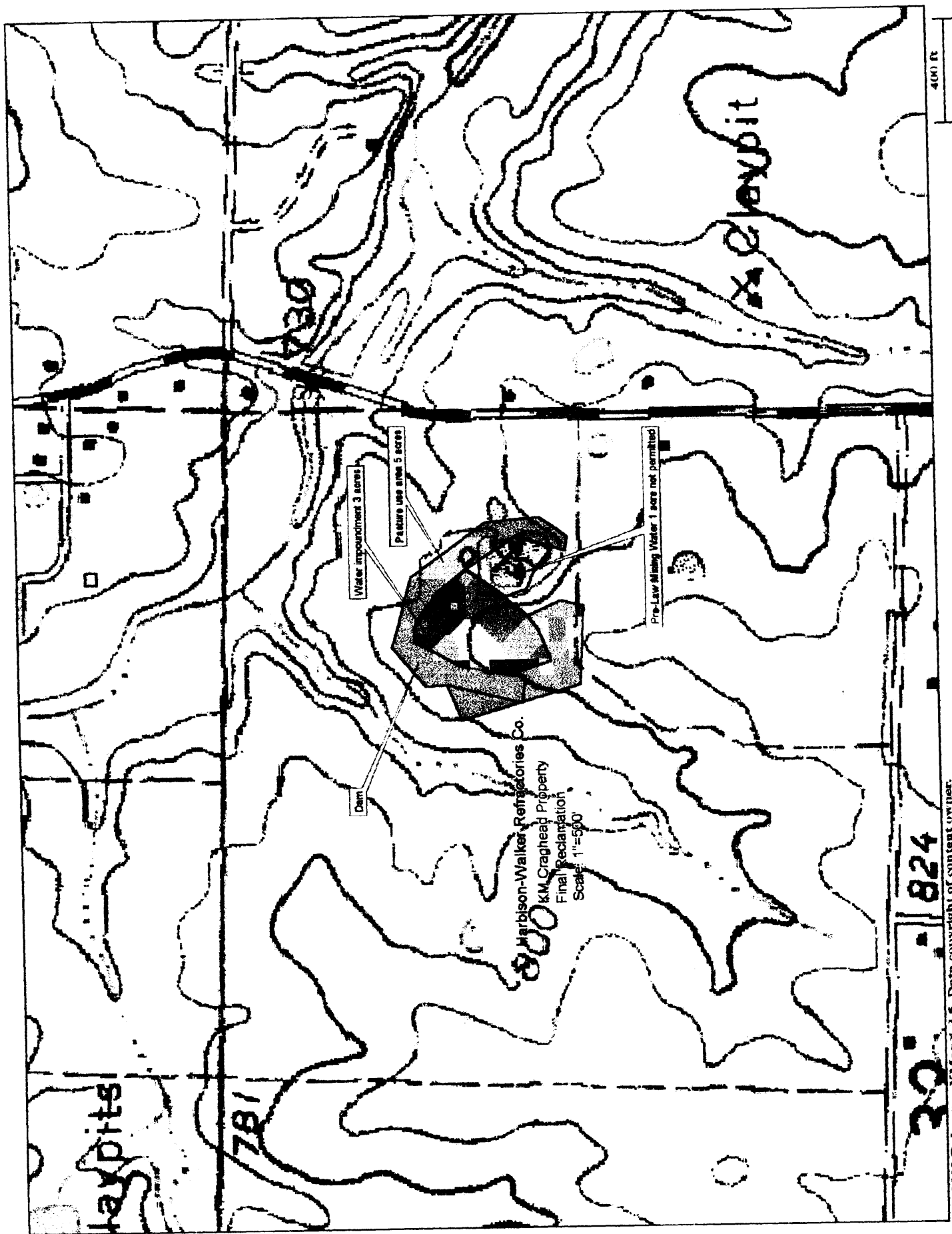
APR 28 2003

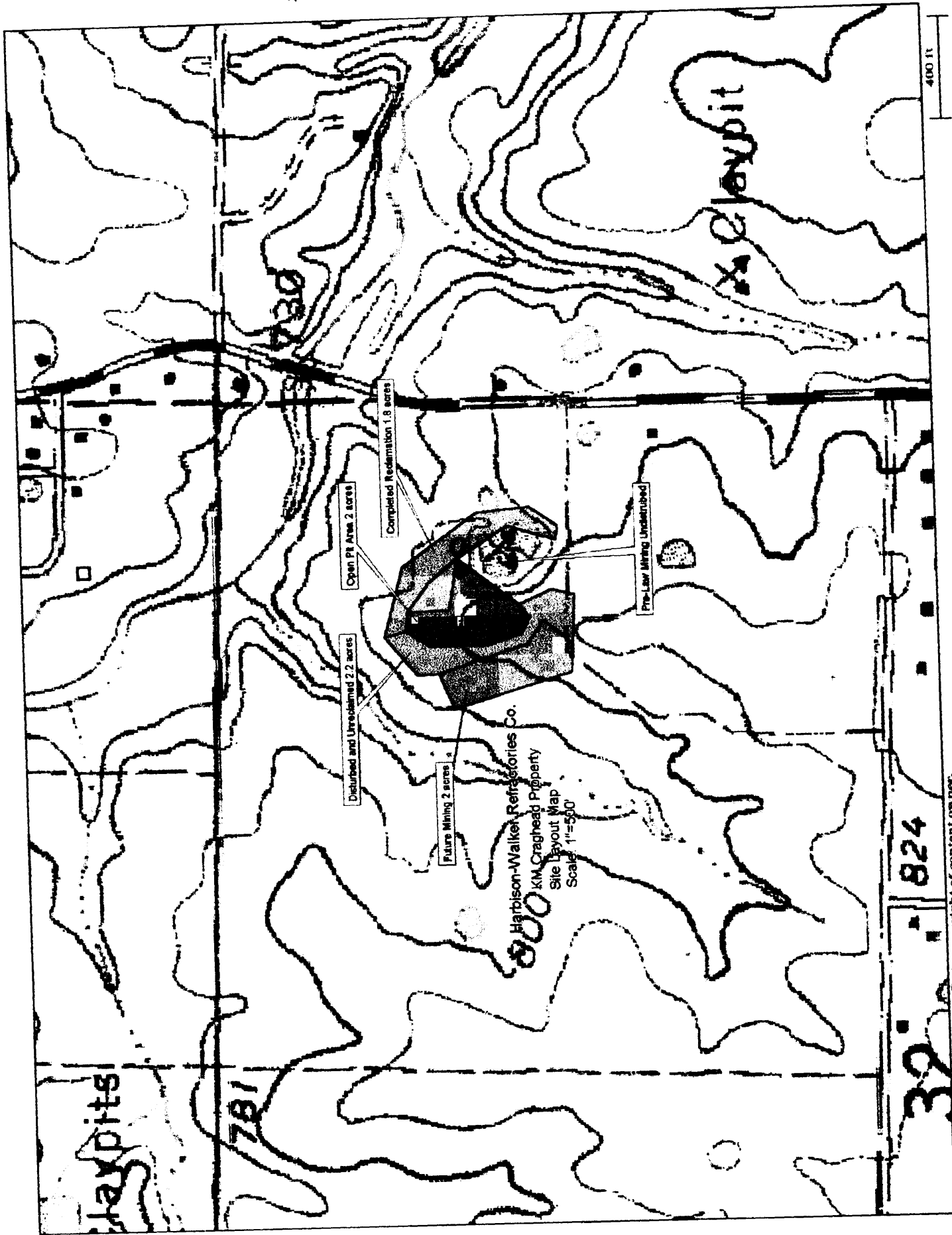
By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>Wendy Gheb</i>		TITLE <i>Geologist</i>	
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Missouri</i>		COUNTY (OR CITY OF ST. LOUIS) <i>Callaway</i>
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>22</i> DAY OF <i>April</i> 20 <i>03</i>		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Karen S. Luther</i>	MY COMMISSION EXPIRES <i>7/18/03</i>	KAREN S. LUTHER NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY COMMISSION EXPIRES JULY 18, 2003
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Karen S. Luther</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>[Signature]</i>		DATE APPROVED <i>7-17-03</i>	PERMIT NUMBER <i>146</i>





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Scale: 1 : 6,000 Zoom Level: 15-1 Datum: WGS84 Map Rotation: 0° Magnetic Declination: 1.5° E



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

To be completed for each separate area of disturbance associated with mining operations.

SITE NAME OR NUMBER Keown		PERMIT NUMBER 73-146
COMPANY NAME Harbison-Walker Refractories, a division of INDRESCO, Inc.		
COUNTY Callaway	1/4 SECTION Northwest Quarter	SECTION 29
TOWNSHIP 45 North	RANGE 10 West	ACRES 1
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Clay	ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	

RECEIVED

AUG 28 1992

MISSOURI LAND
RECLAMATION COMMISSION

NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE) John Wieburg		
ADDRESS Highway AA		
CITY Holts Summit	STATE Missouri	ZIP CODE 65043
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT 09/10/68
<input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Same as above		
ADDRESS		
CITY	STATE	ZIP CODE
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT
<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2002

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

KEOWN

This plan covers an area of approximately one acre total. The permit area is a wooded hillside sloping to the east approximately 7 percent. Topsoil is a rich clay.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 - 18 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Site mined prior to 1990. No topsoil saved. We will either uncover the buried topsoil or use a substitute soil capable of supporting vegetation.

RECEIVED

AUG 28 1992

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Not applicable.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil from the pit mined prior to 1990 will be graded to traversable slopes. Some of the spoil will be used to build a small dam on the low end, east side, of the pit.

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None.

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

The pit has been mined. Not applicable.

YES NO☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.**A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or oats	30		

REVEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or oats	30		
Use sericea lespedeza on slopes.	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES

KEOWN

B. GRADING

DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

All spoil and pit areas above the anticipated water level will be graded to traversable slopes. An impoundment will be left in the northern portion of the permit area. Terraces will be built as necessary to control erosion.

* A VARIANCE TO THE 12 MONTH GRADING REQUIREMENT HAS BEEN REQUESTED ON THIS PIT.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES

GRADING

Grading will begin as soon as practical. Grading is expected to be completed by 1995.

REPLACEMENT OF TOPSOIL

A soil suitable for plant growth will be spread over the disturbed area as soon as grading is complete.

REVEGETATION

All disturbed areas will be seeded the next spring or fall after final grading.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

6 - 12 inches

200 Aug 28, 1990

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

Agricultural (pasture, cropland, and horticultural)

1/2

Development (residential, industrial, and recreational)

Water impoundments (for wildlife, agricultural, or development)

1/2

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT		TITLE	DATE
Jeffrey P. Jahn		Manager- Mining & Exploration	8/17/92
NOTARY PUBLIC EMBOSSEER SEAL	STATE	COUNTY (OR CITY OF ST. LOUIS)	
	Pennsylvania		Allegheny
	SUBSCRIBED AND SWORN BEFORE ME THIS 17 th DAY OF August, 19 92		
	USE RUBBER STAMP IN CLEAR AREA BELOW		
NOTARY PUBLIC SIGNATURE		MY COMMISSION EXPIRES	
Loretta M. Gottschling		3-20-95	
NOTARY PUBLIC NAME (TYPED OR PRINTED)			
Loretta M. Gottschling			
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER

Callaway

RECEIVED

KEOWN

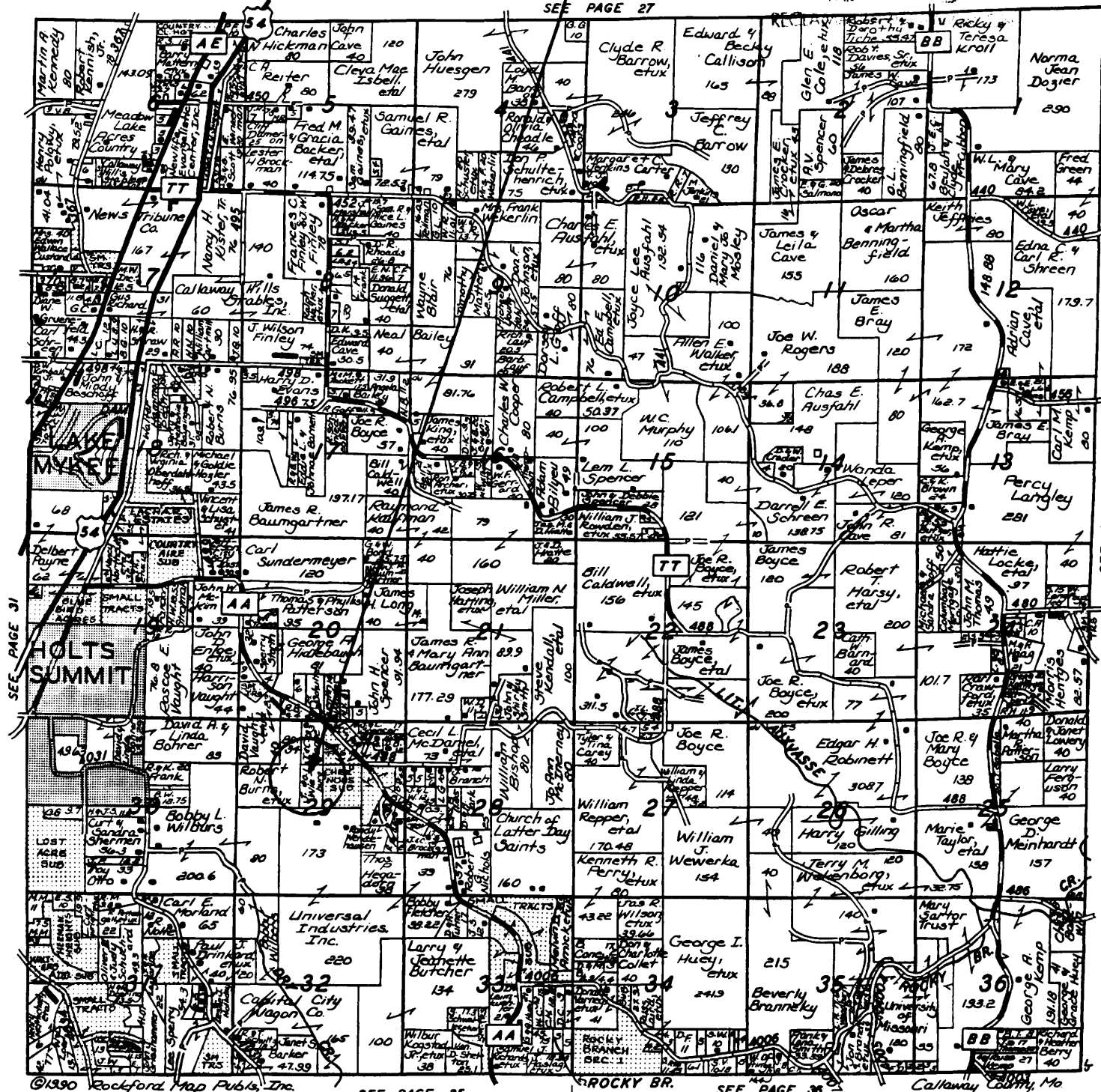
AUG 28 1992

32

T. 45 N. - R. 10 W.

SEE PAGE 27

Map of Callaway County, Mo.



©1990 Rockford Map Pubs. Inc.

SEE PAGE 35

ROCKY BR.

SEE PAGE 36

Callaway County, Mo.

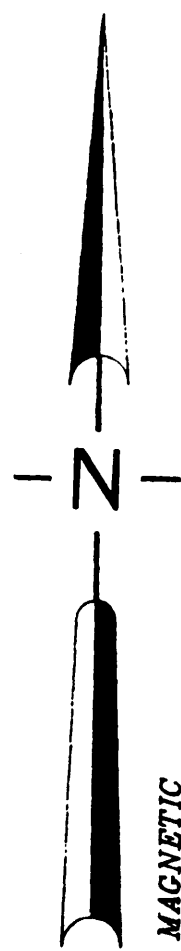
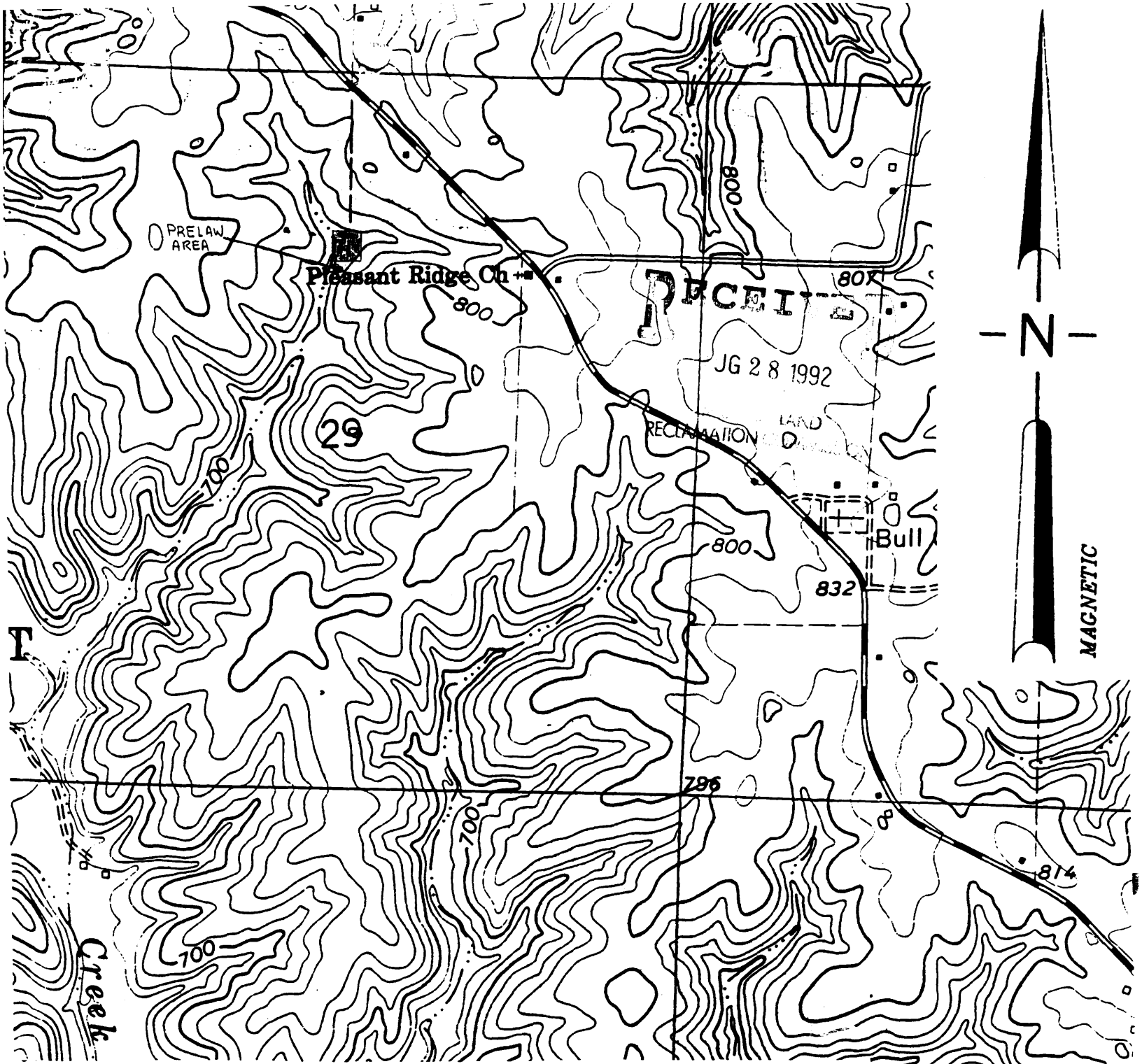
Support The
CALLAWAY COUNTY

SOIL & WATER CONSERVATION DISTRICT

MFA EXCHANGE

Cooperative Association No. 130





HARBISON-WALKER REFRACTORIES
Division of INDRESCO Inc.
P.O. Box 430, Fulton, Missouri 65251

PROPERTY:

KEOWN

PROJECT:

MISSOURI PERMIT

LOCATION:

CALLAWAY COUNTY



Claypit



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

To be completed for each separate area of disturbance associated with mining operations.

SITE NAME OR NUMBER Martin 3		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories, Division of INDRESCO Inc.		
COUNTY Warren	1/4 SECTION NW $\frac{1}{4}$	SECTION 26
TOWNSHIP 47 North	RANGE 1 West	ACRES 3
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)

NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE) Colleen Martin		
ADDRESS R. R. #3		
CITY Wright City	STATE Missouri	ZIP CODE 63390
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories, Division of INDRESCO Inc.		
ADDRESS P. O. Box 430, 1301 Westminster Avenue		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT December 1, 1959

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JUN 25 1993
MISSOURI LAND RECLAMATION COMMISSION

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2003

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

MARTIN 3

This plan covers a total area of 3 acres containing one clay pit. The site is a flat area planted in fescue grass. There is a small private road used by two households which runs through the northern portion of the pit. Topsoil is thick and adequate.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed by dozers and rubber-tired scrapers and stored near the pit within the permit area. We will remove at least 12 inches from all disturbed areas before mining begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Topsoil will be stored in gently sloping piles. Topsoil storage piles will be seeded with annual grasses as needed to control erosion.

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MISSOURI LAND
RECLAMATION COMMISSION

B. SPOIL**DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL**

The pit will be mined in two phases. The northern half of the pit containing the small private road will be mined first. The private road will be diverted to the south and a berm at least 3 feet high will be built between the temporary road and the pit. After the first phase is mined the southern half of the pit will be mined and the spoil will be placed in the mined out area to the north. After the spoil is graded the road will be put back near its original location. A one acre impoundment left will be the mined out southern half of the pit.

C. ACID MATERIALS**DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)**

None.

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)**DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS**

The pit is approximately 100 feet long north to south and 250 long east to west. The pit lies in the north central portion of the permit area.

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MISSOURI LAND
RECLAMATION COMMISSION

YES NO

☐ ☒ Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐ ☒ Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐ ☒ Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.**A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or oats	30		

REVEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-til drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or oats	30		
Use serecea lespedeza on slopes.	20		

RECEIVED

JUN 25 1993

JUN 25 1993

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

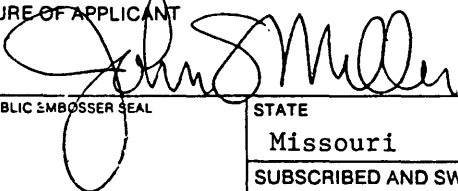
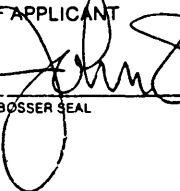
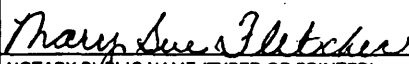

By my signature, I attest to the following:

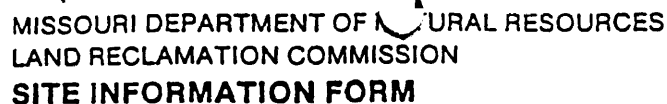
1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

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MISSOURI LAND
RECLAMATION COMMISSION

SIGNATURE OF APPLICANT 		TITLE Vice-President-Manufacturing	DATE June 15, 1993
NOTARY PUBLIC EMBOSSEER SEAL 	STATE Missouri		COUNTY (OR CITY OF ST. LOUIS) Callaway
	SUBSCRIBED AND SWORN BEFORE ME, THIS 15th DAY OF June 19 93		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE 	MY COMMISSION EXPIRES 04/11/1996	MARY SUE FLETCHER NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY MY COMMISSION EXP. APR. 11, 1996
	NOTARY PUBLIC NAME (TYPED OR PRINTED) Mary Sue Fletcher		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) 		DATE APPROVED 7-8-93	PERMIT NUMBER 146



SITE NAME OR NUMBER		PERMIT NUMBER	
Meyer 8		146	
COMPANY NAME			
Harbison-Walker Refractories, Division of INDRESCO Inc.			
COUNTY	1/4 SECTION	SECTION	
Warren	SE $\frac{1}{4}$	8	
TOWNSHIP	RANGE	ACRES	
46 North	2 West	3	
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	
Clay			

ADDRESS		
Route 1, Box 260		
CITY	STATE	ZIP CODE
Warrenton	Missouri	63383
SOURCE OF RIGHT TO MINE (CHECK ONE):		DATE OF AGREEMENT
<input type="checkbox"/> MINERAL DEED <input type="checkbox"/> LEASE		
<input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> VERBAL AGREEMENT		
<input type="checkbox"/> OTHER (DESCRIBE): _____		

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JUN 25 1993

ADDRESS		RECLAMATION COMMISSION
P. O. Box 430, 1301 Westminster Avenue		
CITY	STATE	ZIP CODE
Fulton	Missouri	65251
SOURCE OF RIGHT TO MINE (CHECK ONE):		DATE OF AGREEMENT
<input type="checkbox"/> MINERAL DEED <input checked="" type="checkbox"/> LEASE		May 16, 1956
<input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> VERBAL AGREEMENT		
<input type="checkbox"/> OTHER (DESCRIBE):		

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2003

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

MEYER 8

This plan covers a total area of 3 acres containing one clay pit. Meyer 8 lays on a hill-side of approximately 5 to 10 percent. The area is planted in fescue grasses. An old hand dug pit lies on the west portion of the pit. Topsoil is thick and adequate.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12

INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed by dozers and rubber-tired scrapers and stored near the pit within the permit area. We will remove at least 12 inches from all disturbed areas before mining begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Topsoil will be stored in gently sloping piles. Topsoil storage piles will be seeded with annual grasses, if necessary, to control erosion.

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MISSOURI LAND
RECLAMATION COMMISSION

B. SPOIL**DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL**

The spoil from the pit will be placed on the lower portion (north) side of the pit to form a small dam. The dam will be built using SCS Ponds 378 standards for Missouri. The dam is not expected to be higher than 35 feet. The dam will also cover up the old hand dug pit on the west side of Meyer 8.

C. ACID MATERIALS**DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)**

None.

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)**DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS**

The pit is "L" shaped and is 140 feet wide by 300 feet long.

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JUN 25 1993

MISSOURI LAND
RECLAMATION COMMISSION

YES NO

- | | | |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Will any excavation be at or within fifty feet (50') of the right-of-way of any public road? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.) |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.) |

B. SPOIL**DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL**

The spoil from the pit will be placed on the lower portion (north) side of the pit to form a small dam. The dam will be built using SCS Ponds 378 standards for Missouri. The dam is not expected to be higher than 35 feet. The dam will also cover up the old hand dug pit on the west side of Meyer 8.

C. ACID MATERIALS**DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)**

None.

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)**DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS**

The pit is "L" shaped and is 140 feet wide by 300 feet long.

RECEIVED

JUN 25 1993

MISSOURI LAND
RECLAMATION COMMISSION

YES NO

☐ ☒ Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐ ☒ Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐ ☒ Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2**A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or oats	30		

REVEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10	RECEIVED JUN 25 1993 MISSOURI LAND RECLAMATION COMMISSION	
Korean Lespedeza	6		
Wheat or oats	30		
Use sericea lespedeza on slopes.	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

A one acre impoundment will be left by the mined out pit. All spoil and pit areas above the anticipated water level will be graded to traversable slopes using dozers and rubber-tired scrapers. Terraces and diversion ditches will be constructed as necessary to control runoff and erosion. Fescue hay bales will be staked down in gullies to control erosion.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as the pit advances and spoil is placed in the small dam. Final grading of all disturbed areas will be completed within one year after mining is complete.

REPLACEMENT OF TOPSOIL

Topsoil will be laid down using rubber-tired scrapers and dozers within one year after grading is complete.

REVEGETATION

The site will be seeded the next Spring or Fall following topsoil replacement.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

12 inches

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

Agricultural (pasture, cropland, and horticultural)

2

Development (residential, industrial, and recreational)

Water impoundments (for wildlife, agricultural, or development)

1

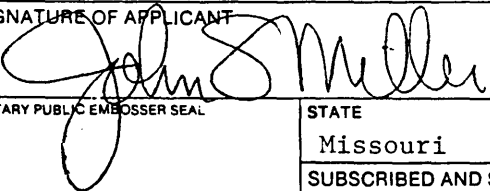
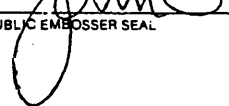
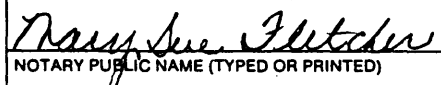

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

RECEIVED

JUN 25 1993

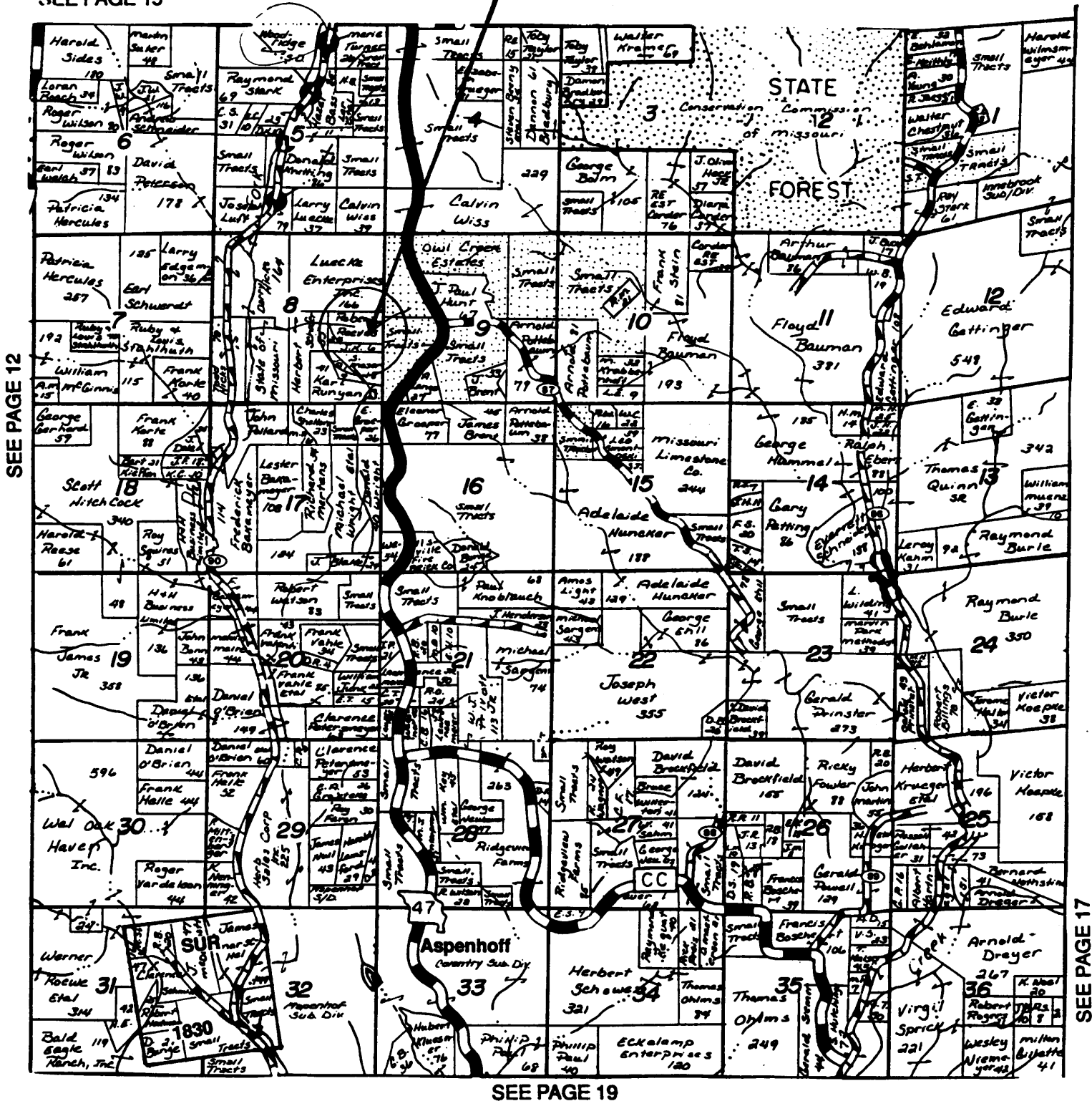
MISSOURI LAND
RECLAMATION COMMISSION

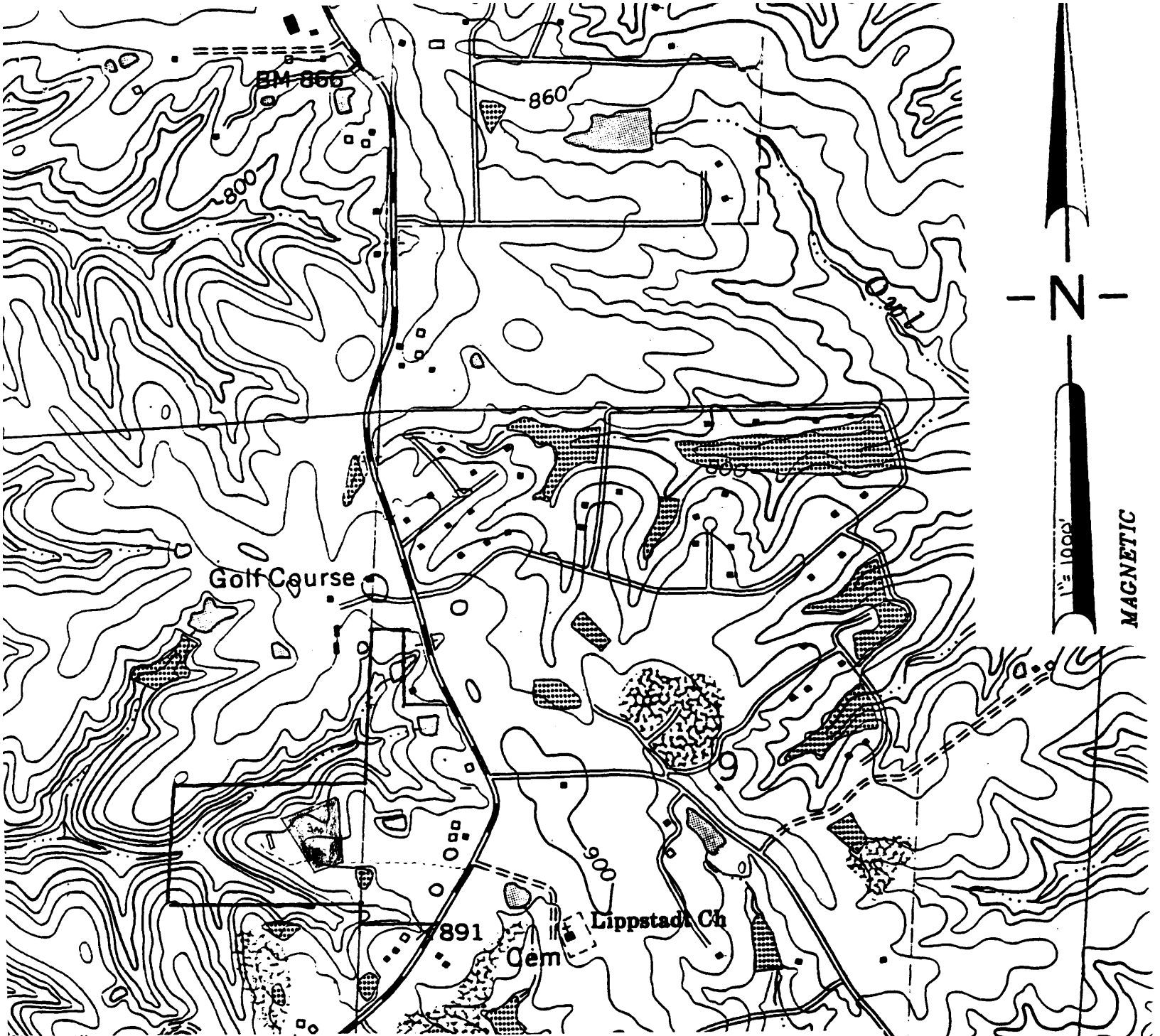
SIGNATURE OF APPLICANT 		TITLE Vice-President-Manufacturing	DATE June 15, 1993
NOTARY PUBLIC EMBOSSEER SEAL 	STATE Missouri		COUNTY (OR CITY OF ST. LOUIS) Callaway
	SUBSCRIBED AND SWORN BEFORE ME, THIS 15th DAY OF June 19 93		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE 	MY COMMISSION EXPIRES 04/11/1996	MARY SUE FLETCHER NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY MY COMMISSION EXP. APR. 11, 1996
	NOTARY PUBLIC NAME (TYPED OR PRINTED) Mary Sue Fletcher		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) 		DATE APPROVED	PERMIT NUMBER 146

Township 46
Range 2W

MEYER 8

SEE PAGE 15





HARBISON-WALKER REFRACTORIES
Division of INDRESCO Inc.
P.O. Box 430, Fulton, Missouri 65251

PROPERTY:
MEYER 8

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JUN 25 1993

PROJECT:
MISSOURI DNR PERMIT

MISSOURI LAND
RECLAMATION COMMISSION

LOCATION:
WARREN CO

ON. VIRGINIA—1986
m.E.
ION
ity road, hard or
d surface

SITE INFORMATION FORM

RECEIVED
MAR 11 1997P.O. BOX 176
JEFFERSON CITY, MO 65102

MISSOURI LAND

RECLAMATION COMMISSION

PERMIT NUMBER

SITE NAME OR NUMBER

William Potthast Pit 13

146

COMPANY NAME

Harbison-Walker Refractories Company

COUNTY

Warren

1/4 SECTION

SE1/4

SECTION

12

TOWNSHIP

46N

RANGE

3W

ACRES

7

RIVER OR STREAM NAME (FOR IN-STREAM ACRES)

MINERAL COMMODITY

Fire Clay

ESTIMATED TONS/YEAR (FOR GRAVEL SITES)

NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE)

Larry Barton

ADDRESS

P.O. Box 454

CITY

Warrenton

STATE

Missouri

ZIP CODE

63383

SOURCE OF RIGHT TO MINE (CHECK ONE):

☐ MINERAL DEED☐ LEASE☐ WARRANTY DEED☐ VERBAL AGREEMENT☐ OTHER (DESCRIBE):

DATE OF AGREEMENT

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE)

Harbison-Walker Refractories Company

ADDRESS

P. O. Box 430

CITY

Fulton

STATE

Missouri

ZIP CODE

65251

SOURCE OF RIGHT TO MINE (CHECK ONE):

☒ MINERAL DEED☐ LEASE☐ WARRANTY DEED☐ VERBAL AGREEMENT☐ OTHER (DESCRIBE):

DATE OF AGREEMENT

September 13, 1910

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 03/01/2007

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY.

This plan covers a total area of 7 acres containing 1 pit. Before mining the site was an open field in pasture. The topsoil is good and the slopes are gentle.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

We will excavate the pit and place the overburden in the low-lying area to the west of the pit. The spoil will be moved with scrapers and bulldozers. The spoil will be graded to a traversable slope shortly after placement.

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

The site is located to the west of Highway U. We will haul out of the pit from an existing road running from the pit site to Missouri Highway U.

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MISSOURI LAND
RECLAMATION COMMISSION

YES

NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

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A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1

PURPOSE OR LAND USE

MISSOURI LAND

RECLAMATION COMMISSION

B. SEEDING OR PLANTING TIME

Mixture #1

Agriculture

Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or Oats	30		

VEGETATION MIX #2

PURPOSE OR LAND USE

B. SEEDING OR PLANTING TIME

Mixture #2

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or Oats	30		
Serecea Lespedeza (On Slopes)	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING

DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A small impoundment will be left by the final phase of mining. The impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

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MISSOURI LAND
RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances and as spoil is either backfilled or put into a dam. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)

12

D. USE OF LAND WHEN RECLAIMED*Estimate acreage of each land use below, after reclamation:*

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

5

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

2

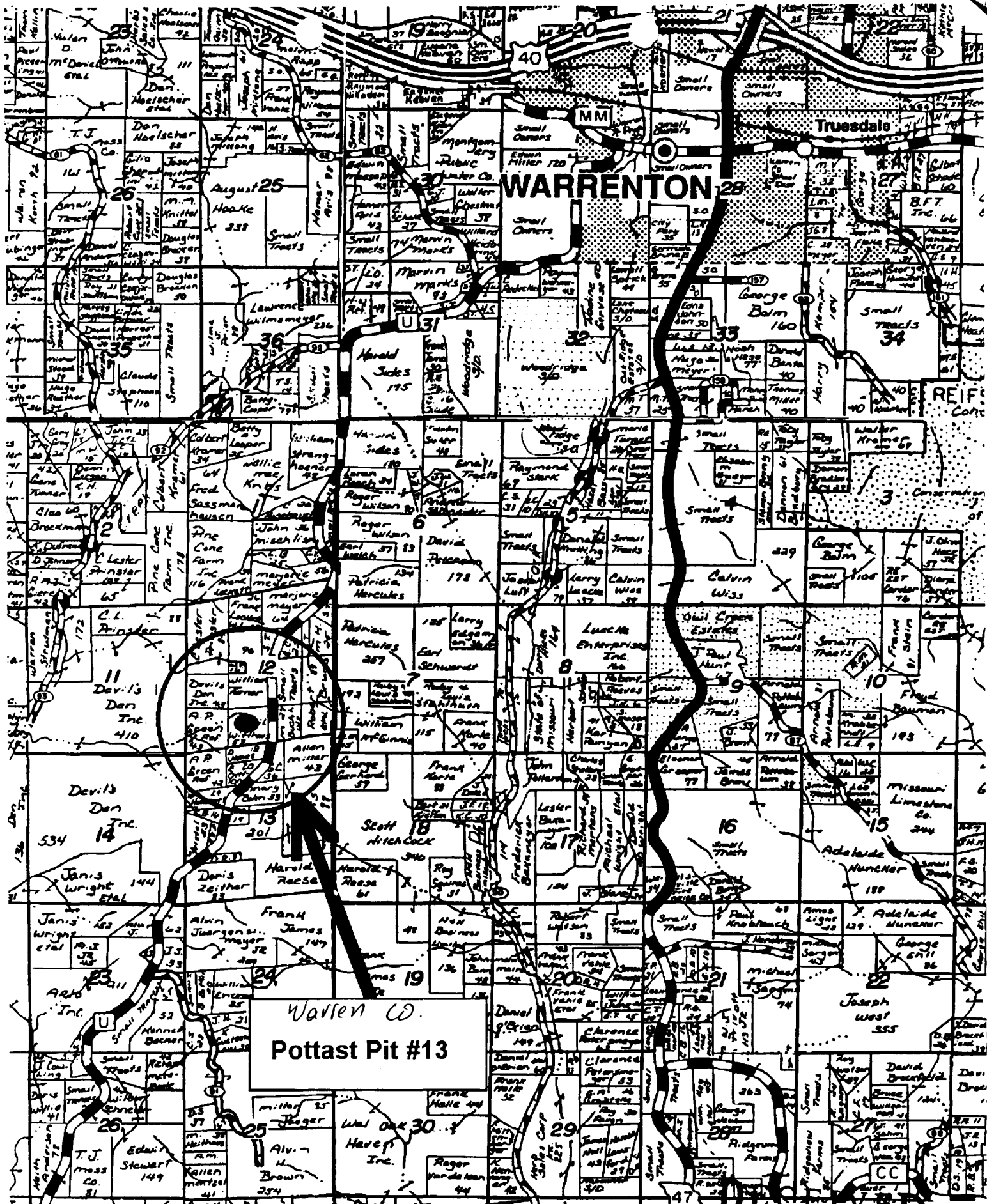
RECEIVED
MAR 11 1997

By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

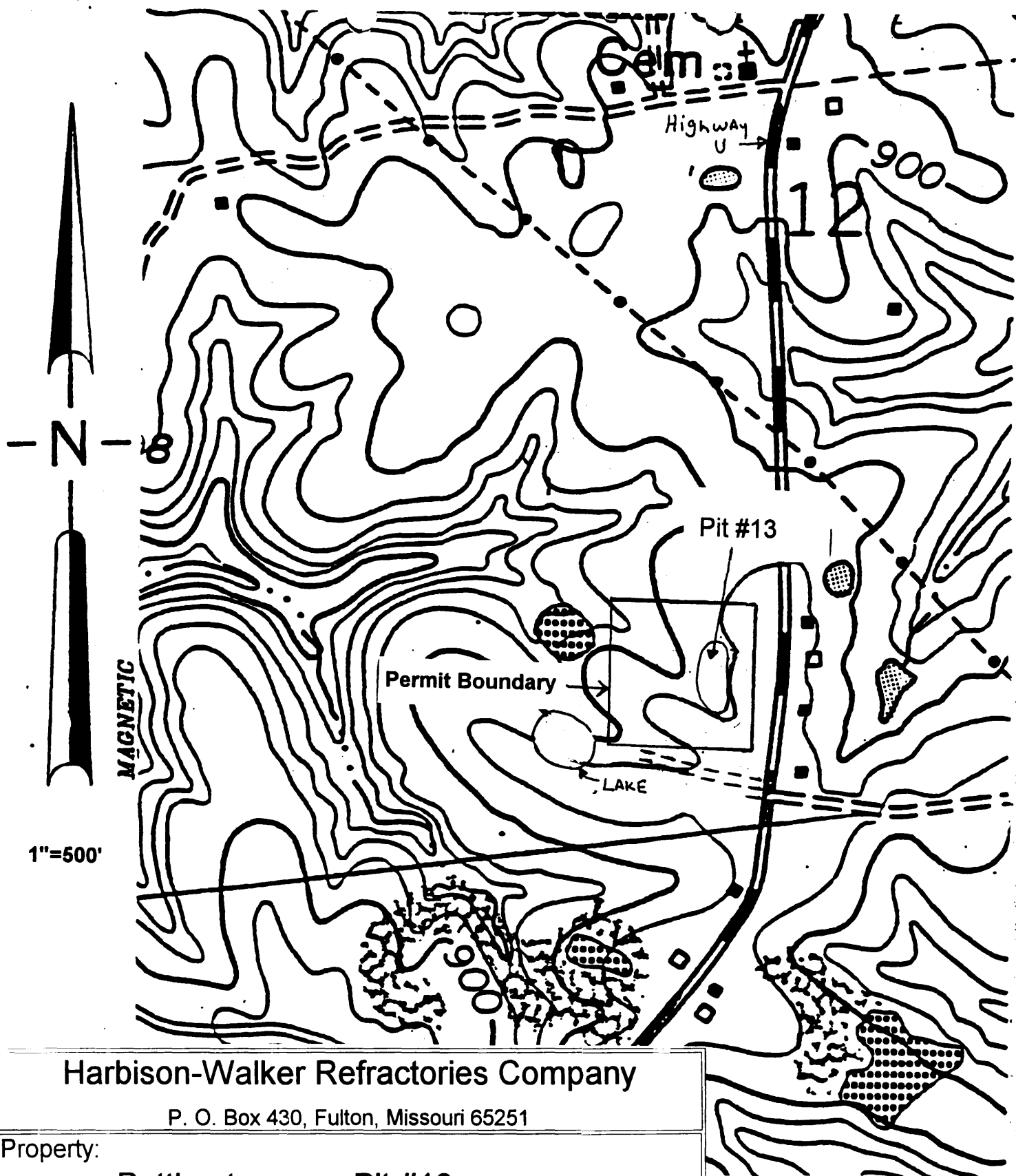
SIGNATURE OF APPLICANT <i>William K. Brown</i>		TITLE <i>VP - Minerals & Mining</i>		DATE <i>3/4/97</i>	
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Pennsylvania</i>		COUNTY (OR CITY OF ST. LOUIS) <i>Allegheny</i>		
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>4th</i> DAY OF <i>March</i> 19 <i>97</i>		USE RUBBER STAMP IN CLEAR AREA BELOW <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 28, 1997 Member, Pennsylvania Association of Notaries </div>		
	NOTARY PUBLIC SIGNATURE <i>Kathleen S. Fuchs</i>	MY COMMISSION EXPIRES <i>11/29/97</i>			
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Kathleen S. Fuchs</i>				
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>Marken Schick</i>		DATE APPROVED <i>4/4/97</i>		PERMIT NUMBER <i>146</i>	
				EXPIRATION DATE <i>7/31/2007</i>	



Harbison-Walker Refractories Company MAR 11 1997

Location: Sect. 12, T. 46 N., R. 3 W.

MISSOURI LAND
RECLAMATION COMMISSION



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Potthast

Pit #13

Project: Land Reclamation Permit
Location Map

Location: Sect. 12, T. 46 N., R. 3 W.

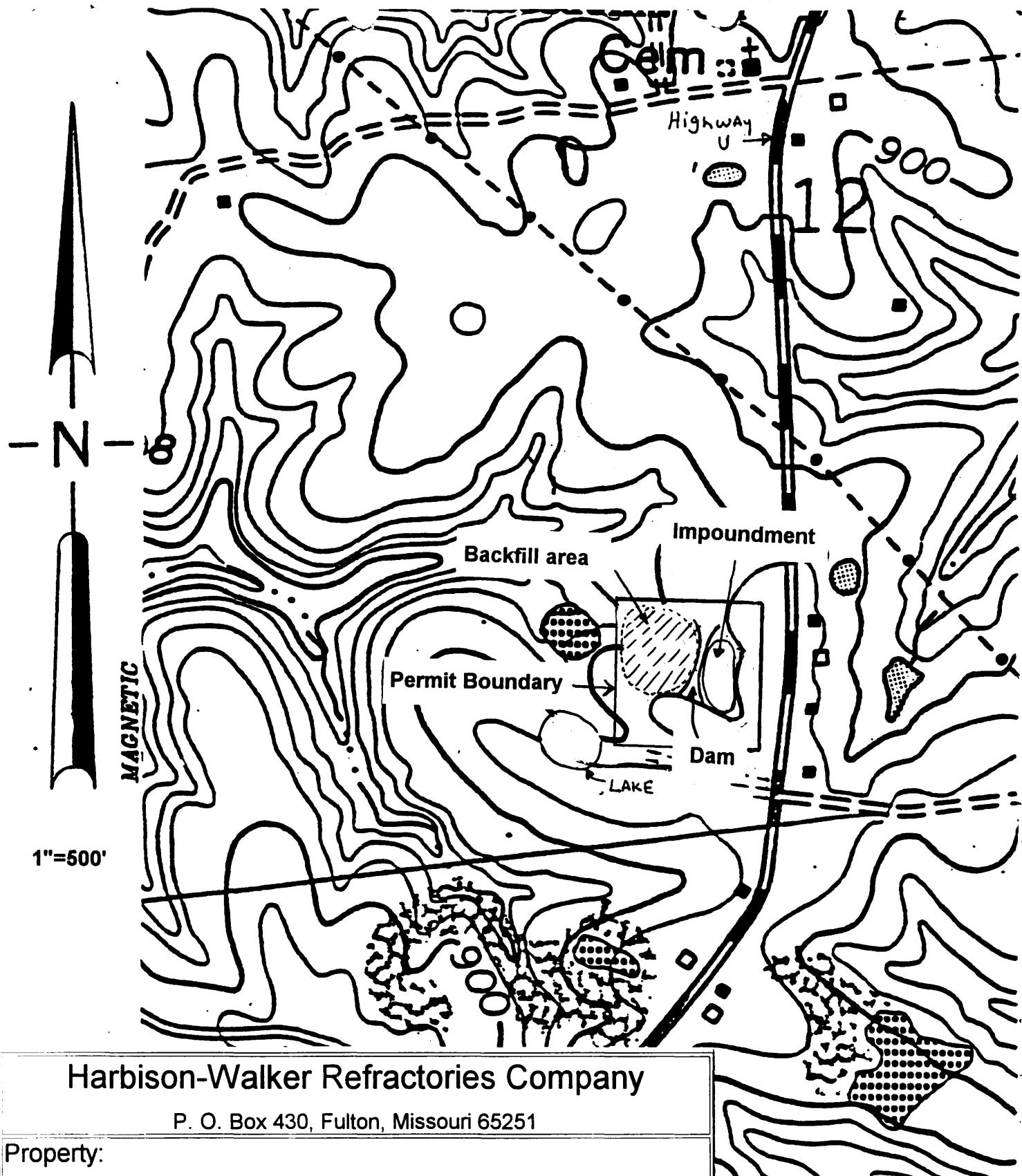
Warren County, Missouri

Designed by: DJK

Date: 2/15/97

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MISSOURI LAND
RECLAMATION COMMISSION



Harbison-Walker Refractories Company P. O. Box 430, Fulton, Missouri 65251	
Property: Potthast Pit #13	
Project: Land Reclamation Permit Final Land Use	
Location: Sect. 12, T. 46 N., R. 3 W. Warren County, Missouri	
Designed by: DJK	Date: 2/15/97

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

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MISSOURI LAND RECLAMATION COMMISSION
P.O. BOX 176
JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER Sickendick		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Franklin	1/4 SECTION NW	SECTION 34
TOWNSHIP 43 North	RANGE 4 West	ACRES 15
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) Catherine Zimmerly		
ADDRESS 1636 Crabapple Lane		
CITY Webster Groves	STATE Missouri	ZIP CODE 63119
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		DATE OF AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company		
ADDRESS P.O. Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): <input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		DATE OF AGREEMENT 3/9/1955
NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.		

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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MISSOURI LAND
RECLAMATION COMMISSION

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: 08/01/2009

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY.

The site is currently in brush and timber and is being used for wildlife. The pit occurs along the side of a ridge where the topography is well drained. Topsoil in the area is fair.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be removed using bull-dozers and rubber tired scrapers. Spoil will be used to construct a dam to the east of the pit.

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MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

The pit is located in the center of the reservation and is roughly circular in plan view.

YES

NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?

(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #1	Agriculture	Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

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MISSOURI LAND
RECLAMATION COMMISSION

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Wheat or Oats	25 5 30		

VEGETATION MIX #2	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #2	Agriculture	Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A small impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

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MISSOURI LAND
RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will be backfilled into a dam to create an impoundment. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)**12****D. USE OF LAND WHEN RECLAIMED****Estimate acreage of each land use below, after reclamation:****ESTIMATED ACRES:**

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

13

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)




2

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AUG 05 1998

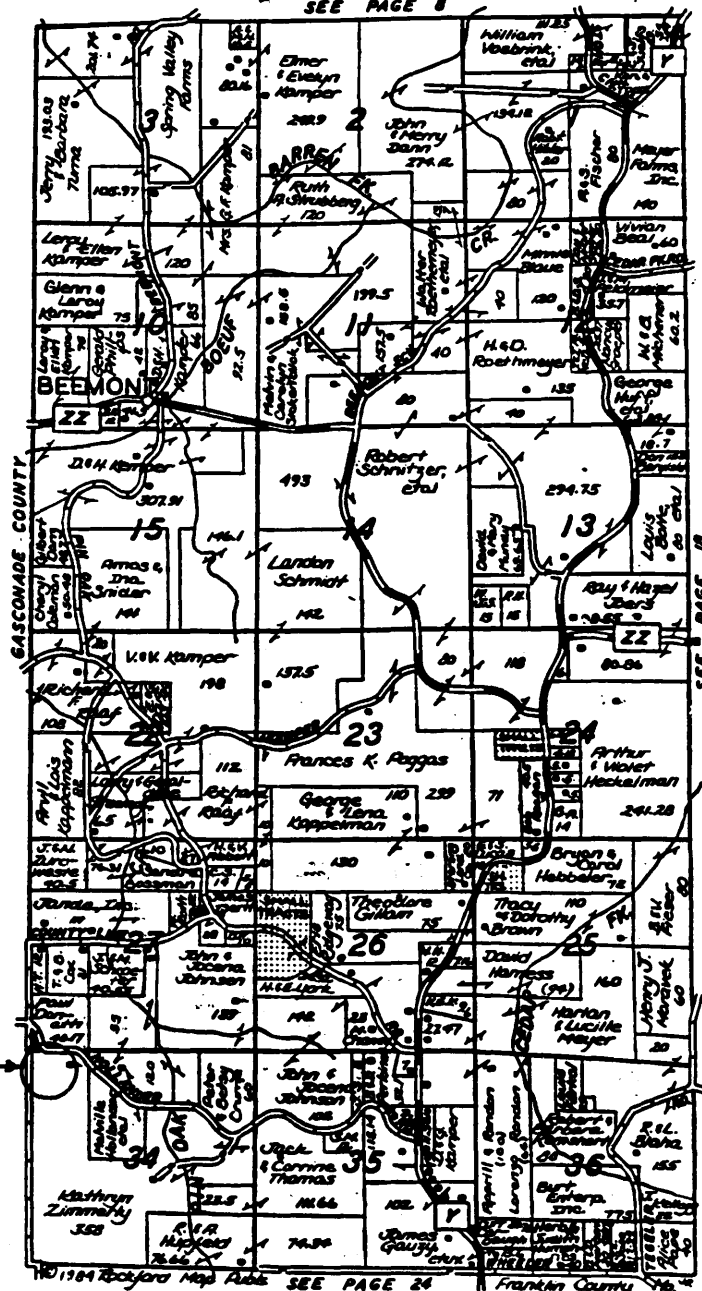
By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT 		TITLE Manager-Mining	
NOTARY PUBLIC EMBOSSER SEAL	STATE Pennsylvania		COUNTY (OR CITY OF ST. LOUIS) Allegheny
	SUBSCRIBED AND SWORN BEFORE ME, THIS 14th DAY OF July 19 98		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE 	MY COMMISSION EXPIRES 11/29/01	
	NOTARY PUBLIC NAME (TYPED OR PRINTED) KATHLEEN S. FUCHS		Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 29, 2001
APPROVED BY (DIRECTOR'S REPRESENTATIVE) 		DATE APPROVED 9-2-98	PERMIT NUMBER 146

Sickendick
Pit 4



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AUG 05 1998

MISSOURI LAND
RECLAMATION COMMISSION

Hillermann
NURSERY & FLORIST, INC.

1160 West Fifth Street
Washington, Missouri 63090

Don F. & Bernice A. Hillermann

(314) 239-6729



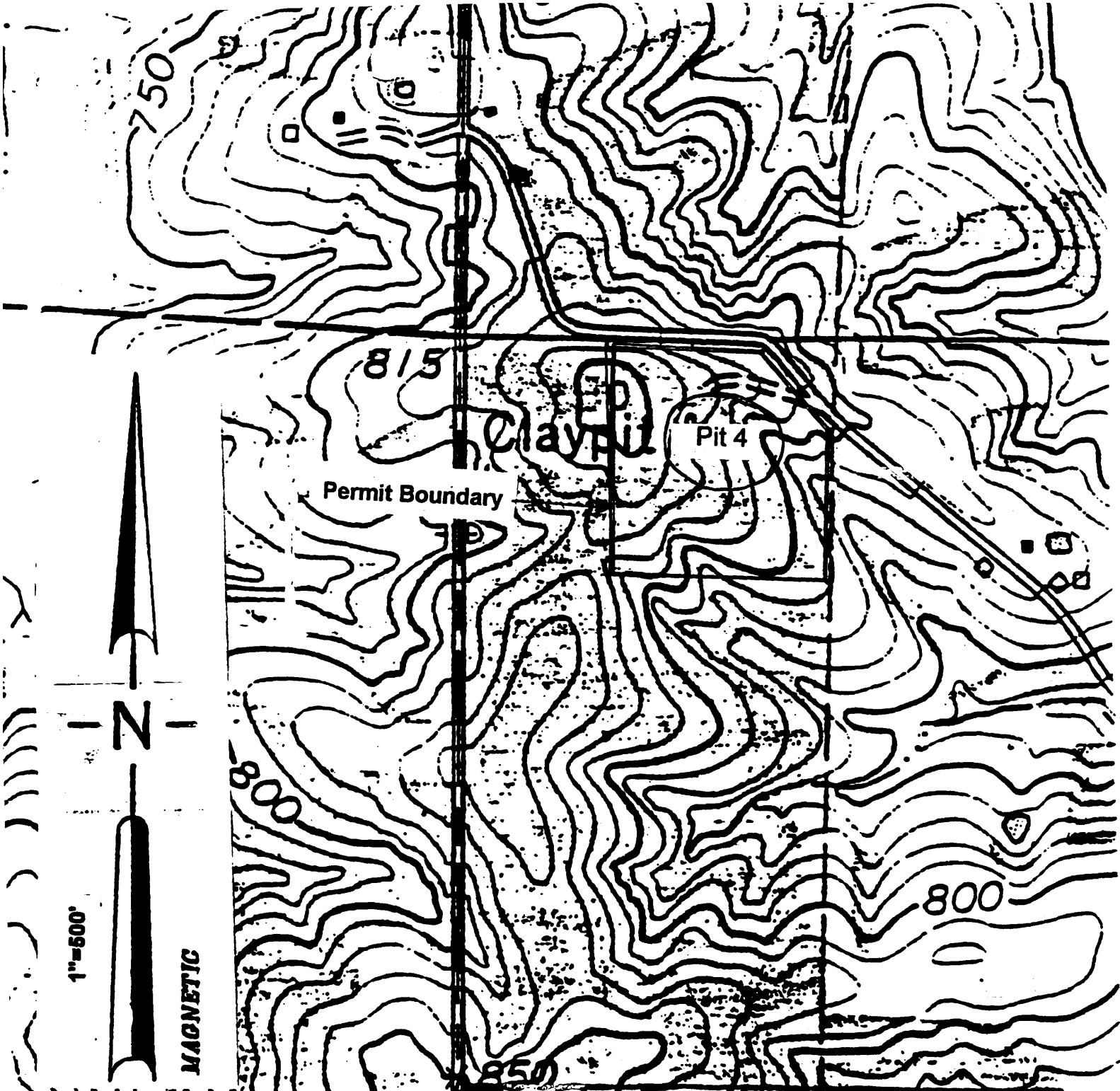
Ford 2610 Tractor



WASHINGTON TRACTOR CO.

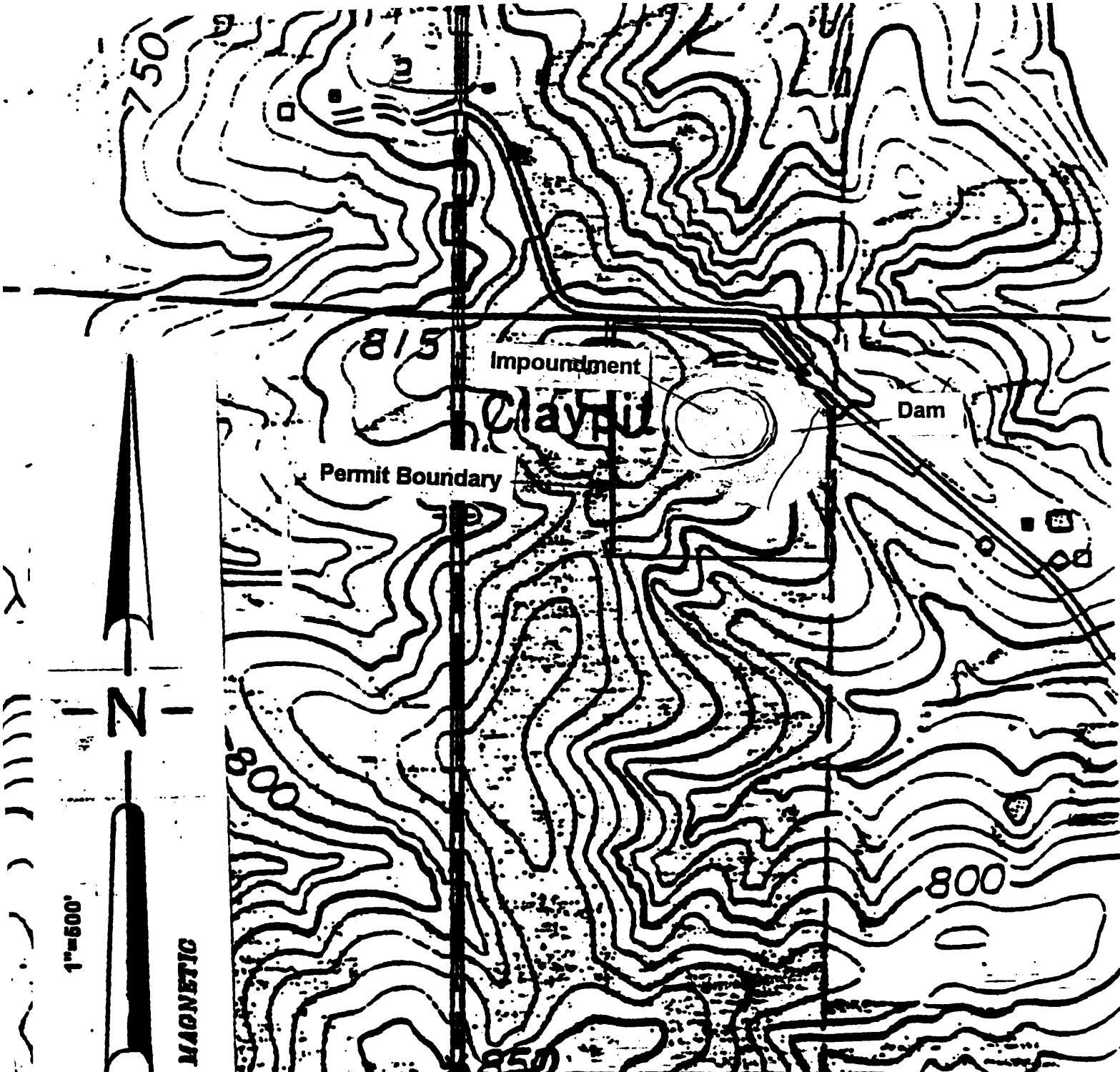
Highway 47 South - Washington, Missouri

239-6155



Harbison-Walker Refractories Company	
P. O. Box 430, Fulton, Missouri 65251	
Property:	Sickendick Pit 4
Project:	Land Reclamation Permit Location Map
Location:	Sect. 34, T. 43 N., R. 4 W. Franklin County, Missouri
Designed by: DJK	Date: June 30, 1998

RECEIVED
AUG 05 1998
MISSOURI LAND
RECLAMATION COMMISSION



Harbison-Walker Refractories Company	
P. O. Box 430, Fulton, Missouri 65251	
Property:	Sickendick Pit 4
Project:	Land Reclamation Permit Final Land Use
Location:	Sect. 34, T. 43 N., R. 4 W. Franklin County, Missouri
Designed by:	DJK
Date:	June 30, 1998

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AUG 05 1998
MISSOURI LAND
RECLAMATION COMMISSION



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

To be completed for each separate area of disturbance associated with mining operations.

SITE NAME OR NUMBER Stockton #1 (old pit)		PERMIT NUMBER 81-146-A
COMPANY NAME Harbison-Walker Refractories, Division of INDRESCO, Inc.		
COUNTY Maries	1/4 SECTION Northeast Quarter	SECTION 1
TOWNSHIP 40 North	RANGE 7 West	ACRES 1
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Clay	ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	

RECEIVED

NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE) Anna Belle Elrod			AUG 28 1992	
ADDRESS P.O. Box 510			MISSOURI RECLAMATION COMMISSION	
CITY Bourbon	STATE Missouri	ZIP CODE 65441		
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): _____			<input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT DATE OF AGREEMENT August 11, 1949	

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Same as above		
ADDRESS		
CITY	STATE	ZIP CODE
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): _____		<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT DATE OF AGREEMENT

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2002

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

STOCKTON #1

This plan covers a total of one acre containing one clay pit. This site was an abandoned prelaw clay pit which had been partially mined. We pumped this pit out and mined the remaining clay in the pit. The area had been cleared, topsoil removed, and overburden removed before we ever moved onto the site. We mined this pit prior to 1990. The site sits on a ridge top surrounded by woods.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

0

INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Not applicable - No topsoil saved

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MISSOURI LAND
RECLAMATION COMMISSION

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Not applicable.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

The spoil from the old pit was graded to traversable slopes before started mining. There was no spoil produced by our mining operations. We do not plan to disturb the old spoil unless it is beneficial.

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None.

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

Pit was already stripped and partially mined before permitting. To get to the pit, go one half mile north on the county road and go straight on to a private road at the first curve. Go a half mile north on the private road and you're there. The pit is a circle with a diameter of approximately 150'.

YES NO

☐ ☒ Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐ ☒ Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐ ☒ Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.**A. REVEGETATION (Attach additional sheets, if needed)**

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or oats	30		

REVEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or oats	30		
Use sericea lespedeza on slopes.	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

All areas which were redisturbed by our mining will be graded to traversable slopes. An impoundment will be left by the mined out pit. Terraces and diversion ditches will be constructed as necessary to increase the watershed of the impoundment and decrease runoff.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

The site has already been graded to traversable slopes. Any additional grading for terraces and ditches will be completed by 1994.

REPLACEMENT OF TOPSOIL

None. A suitable substitute will be used as topsoil.

REVEGETATION

The area will be seeded the first Spring or Fall after final grading.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)**D. USE OF LAND WHEN RECLAIMED**

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

Agricultural (pasture, cropland, and horticultural)

0.5

Development (residential, industrial, and recreational)

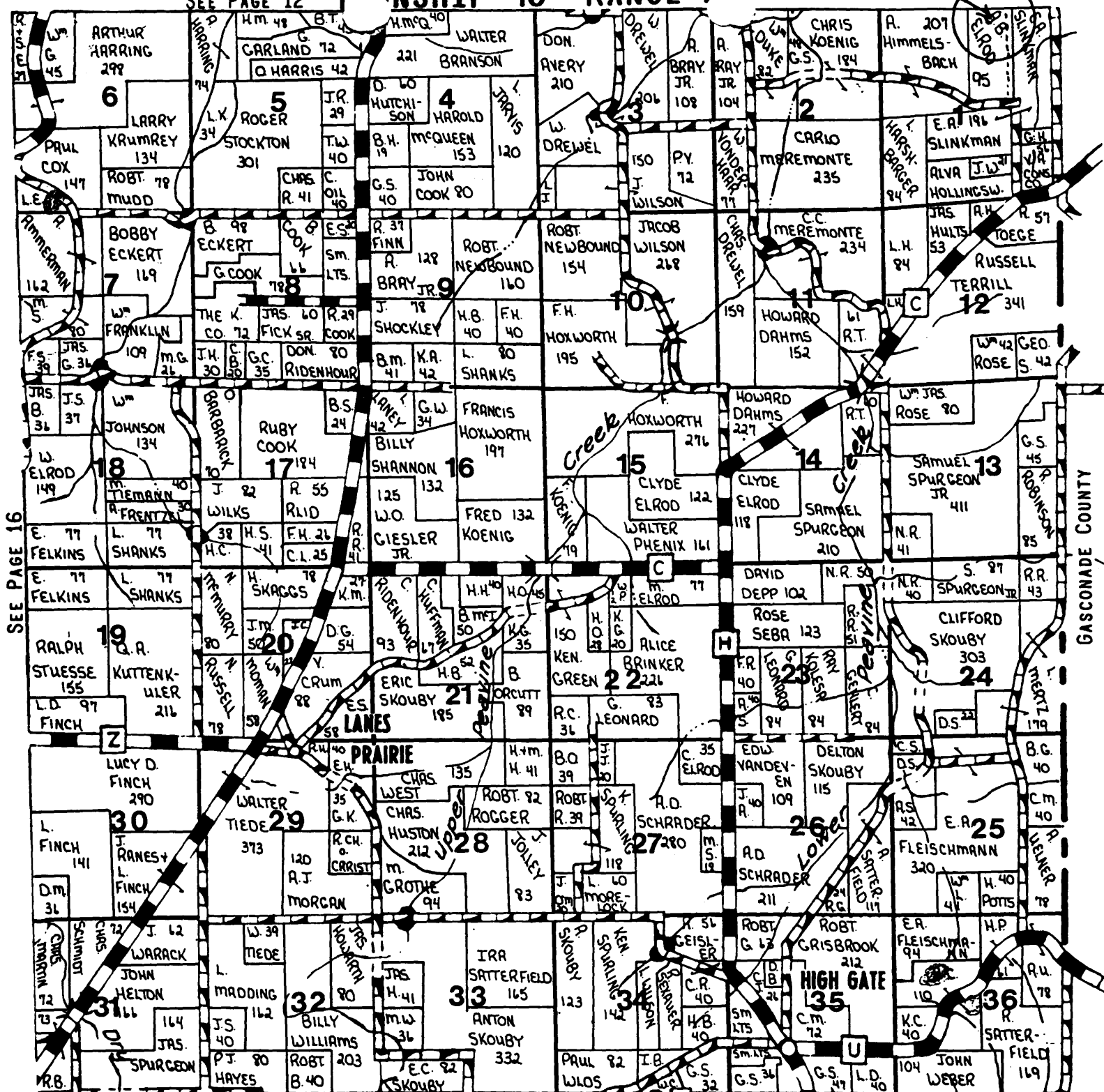
Water impoundments (for wildlife, agricultural, or development)

0.5

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT		TITLE	DATE
Jeffrey P. Jahn <i>[Signature]</i>		Manager- Mining & Exploration	8/12/92
NOTARY PUBLIC EMBOSSEY SEAL	STATE	COUNTY (OR CITY OF ST. LOUIS)	
	Pennsylvania		Allegheny
	SUBSCRIBED AND SWORN BEFORE ME, THIS 17 th DAY OF August 19 92		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE	MY COMMISSION EXPIRES	
	Loretta M. Gottschling		3-20-95
	NOTARY PUBLIC NAME (TYPED OR PRINTED)		
	Loretta M. Gottschling		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER



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Stockton #1

Marie

REGISTRATION COMMISSION

MISSOURI DEPARTMENT OF NATURAL RESOURCES

LAND RECLAMATION COMMISSION

SITE INFORMATION FORM

RECEIVED
AUG 05 1998P.O. BOX 176
MISSOURI LAND RECLAMATION COMMISSION
JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER Tucker		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Lincoln	1/4 SECTION SW	SECTION Lot M-6
TOWNSHIP U.S. Survey 1710, T. 51 N.	RANGE 1 West	ACRES 24
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) Charles Finnerty		
ADDRESS 27830 Highway WW		
CITY Eolia	STATE Missouri	ZIP CODE 63344
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): _____		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company		
ADDRESS P.O. Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input checked="" type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): _____		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT 11/15/12
NOTE: Each site must be sown on a map and be included in a public notice and an approved mine plan.		

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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TYPE OF PLAN (CHECK ONE):

MISSOURI LAND
RECLAMATION COMMISSION

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 08/01/2009

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY.

The site is currently being used for row crops. The pit occurs in a field where the topography is gently sloping. Topsoil in the area is good.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be removed using bull-dozers and rubber tired scrapers. Spoil will be backfilled as mining progresses.

MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

YES

NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

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RECLAMATION PLAN - 10 CSR 40-10.0(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Agriculture

MISSOURI LAND

RECLAMATION COMMISSION

B. SEEDING OR PLANT TIME

Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Wheat or Oats	25 5 30		

VEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Agriculture

B. SEEDING OR PLANTING TIME

Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A small impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

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MISSOURI LAND
RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas or put into a dam to create an impoundment. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)**12****D. USE OF LAND WHEN RECLAIMED***Estimate acreage of each land use below, after reclamation:***ESTIMATED ACRES:**

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

21

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

3

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AUG 05 1998

By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>W. T. [Signature]</i>		TITLE <i>Manager - Mining</i>	
NOTARY PUBLIC EMBOSSER SEAL	STATE <i>Pennsylvania</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Allegheny</i>	
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>14th</i> DAY OF <i>July</i> 19 <i>98</i>		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Kathleen S. Fuchs</i>	MY COMMISSION EXPIRES <i>11/29/01</i>	Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 29, 2001 Member, Pennsylvania Association of Notaries
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Kathleen S. Fuchs</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>Beth [Signature]</i>		DATE APPROVED <i>9-2-98</i>	PERMIT NUMBER <i>146</i>



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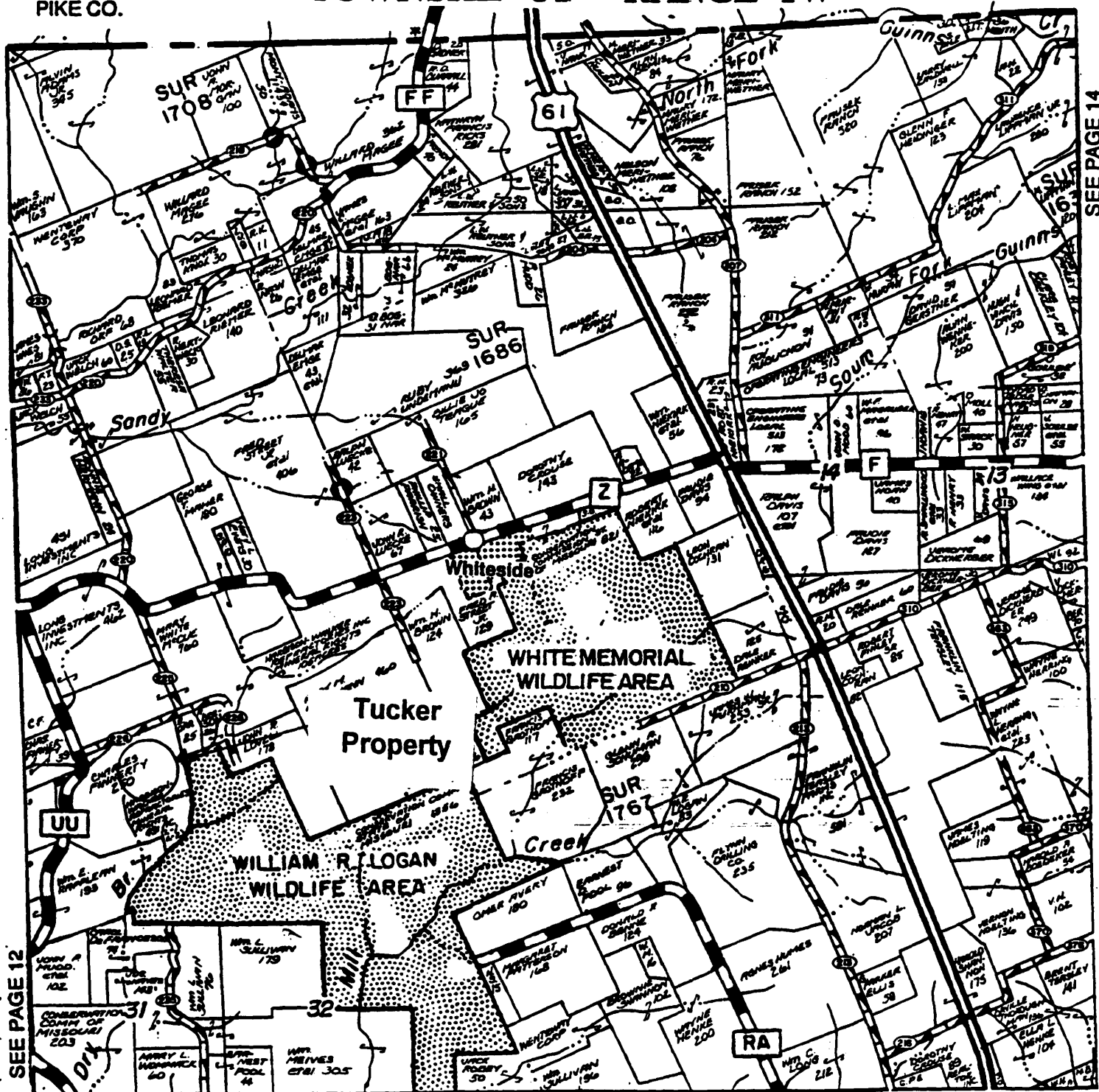
485-7171

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MISSOURI LAND
RECLAMATION COMMISSION

TOWNSHIP 51 • RANGE 1W

PIKE CO.



SEE PAGE 14

SEE PAGE 12

Harbison-Walker Refractories Company

P. O. Box 430, Funderburg, Missouri 65251

Property:

Tucker

Property

Project:

Land Reclamation Permit

Location Map

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AUG 05 1998

Location:

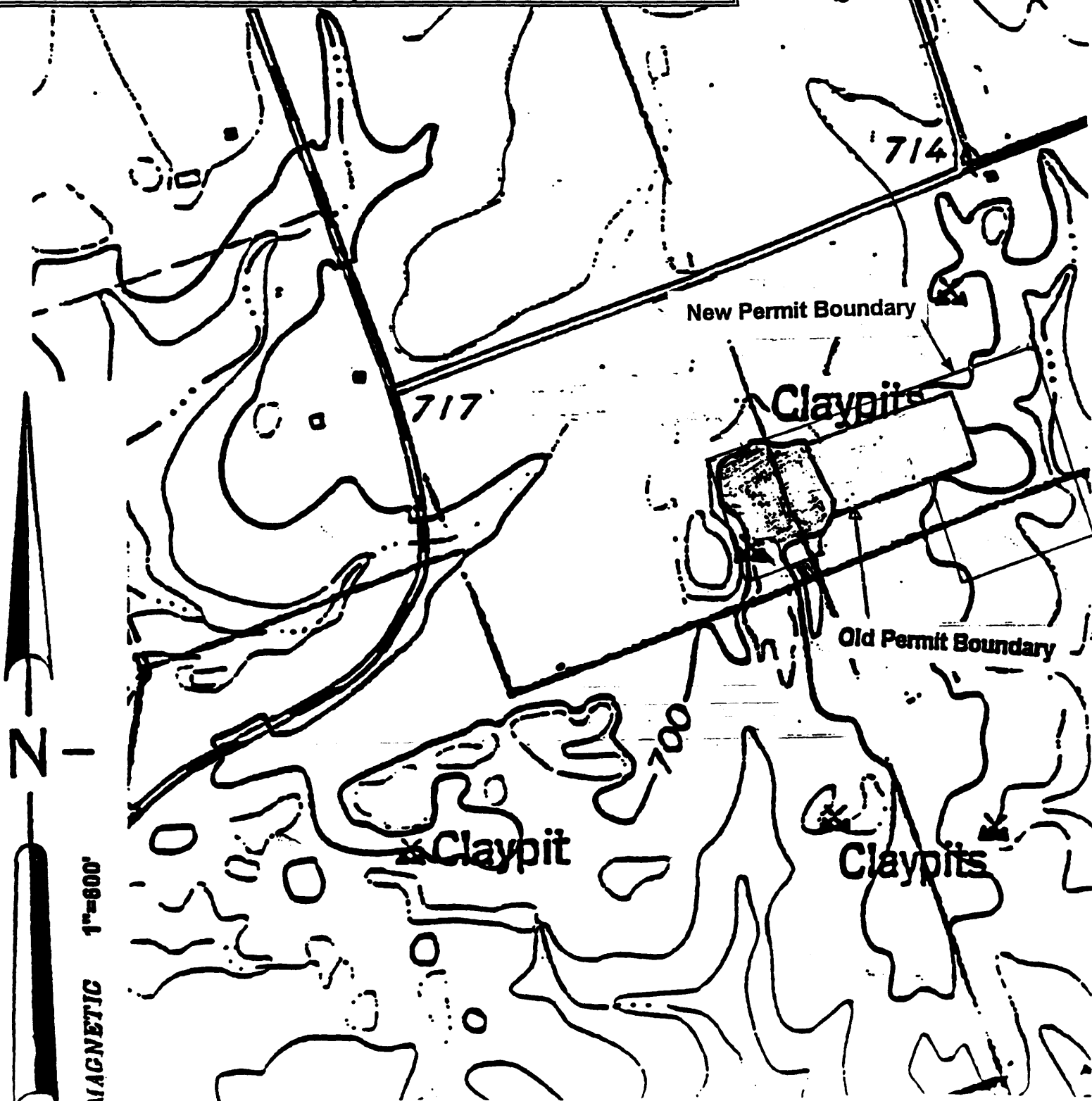
Lot M-6, US Survey 1710

Lincoln County, Missouri

MISSOURI LAND
RECLAMATION COMMISSION

Designed by: DJK

Date: June 30, 1998



Harrison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Tucker

Property

Project: Land Reclamation Permit

Final Land Use

Location: Lot M-6, US Survey 1710

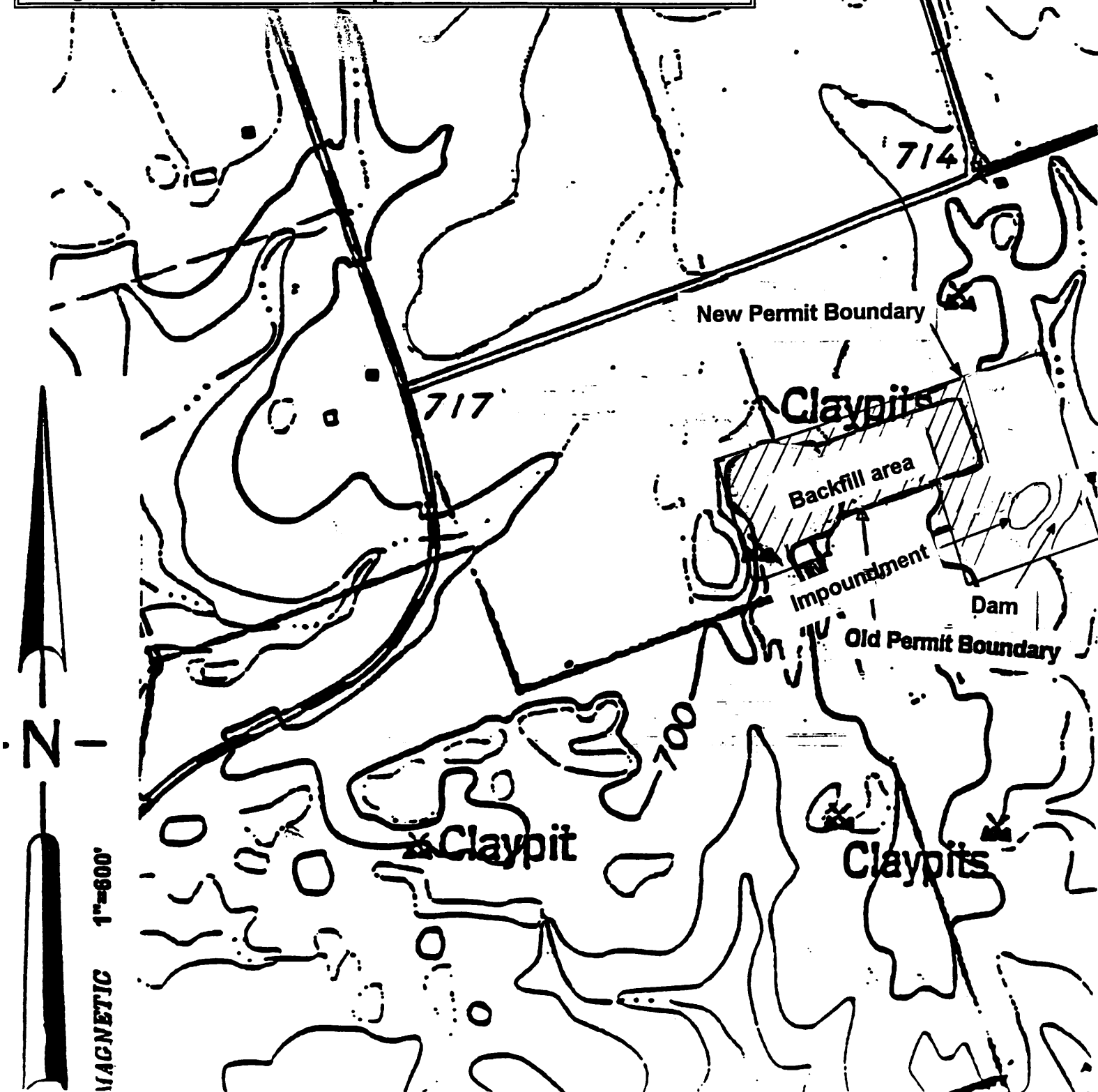
Lincoln County, Missouri

MISSOURI LAND
RECLAMATION COMMISSION

Designed by: DJK

Date: June 30, 1998

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

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AUG 5 1998
MISSOURI LAND RECLAMATION COMMISSION
P.O. BOX 176
JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER Uptergrove		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Lincoln	1/4 SECTION N/A	SECTION Lot L-1
TOWNSHIP U.S. Survey 1710, T. 51 N.	RANGE 1W	ACRES 14
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) Charles Finnerty		
ADDRESS 27830 Highway WW		
CITY Eolia	STATE Missouri	ZIP CODE 63344
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company		
ADDRESS P.O. Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input checked="" type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT 3/10/41
NOTE: Each site must be sown on a map and be included in a public notice and an approved mine plan.		

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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AUG 05 1998

TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 8/1/2009

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY.

This site is currently being used for cattle pasture. The topography is flat and the topsoil is good.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be removed using bull-dozers and rubber tired scrapers. Spoil will be backfilled as mining progresses in successive phases.

RECEIVED
AUG 05 1998MISSOURI LAND
RECLAMATION COMMISSION**C. ACID MATERIALS**

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

The pit is located in the center of the field along Missouri Route UU. The pit is oblong in plan view.

YES

NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?

(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECEIVED

AUG 05 1998

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #1	MISSOURI LAND Agriculture RECLAMATION COMMISSION	Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Wheat or Oats	25 5 30		

VEGETATION MIX #2	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #2	Agriculture	Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A small impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

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AUG 05 1998

MISSOURI LAND
RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas or put into a dam to create an impoundment. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)**12****D. USE OF LAND WHEN RECLAIMED***Estimate acreage of each land use below, after reclamation:***ESTIMATED ACRES:**

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

12

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

2

RECEIVED
AUG 05 1998

By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>W. T. [Signature]</i>		TITLE <i>Manager - Mining</i>	
NOTARY PUBLIC EMBOSSER SEAL	STATE <i>Pennsylvania</i>		COUNTY (OR CITY OF ST. LOUIS) <i>Allegheny</i>
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>14th</i> DAY OF <i>July</i> 19 <i>98</i>		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Kathleen S. Fuchs</i>	MY COMMISSION EXPIRES <i>11/29/01</i>	
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Kathleen S. Fuchs</i>		Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 29, 2001
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>Brett [Signature]</i>		DATE APPROVED <i>9-2-98</i>	PERMIT NUMBER <i>146</i>



Since 1871

CLIFFORD BANKING COMPANY

Clarksville, Missouri 63336

242-3517

CLIFFORD BANKING CO. FACILITY

Eolia, Missouri 63344

485-7171

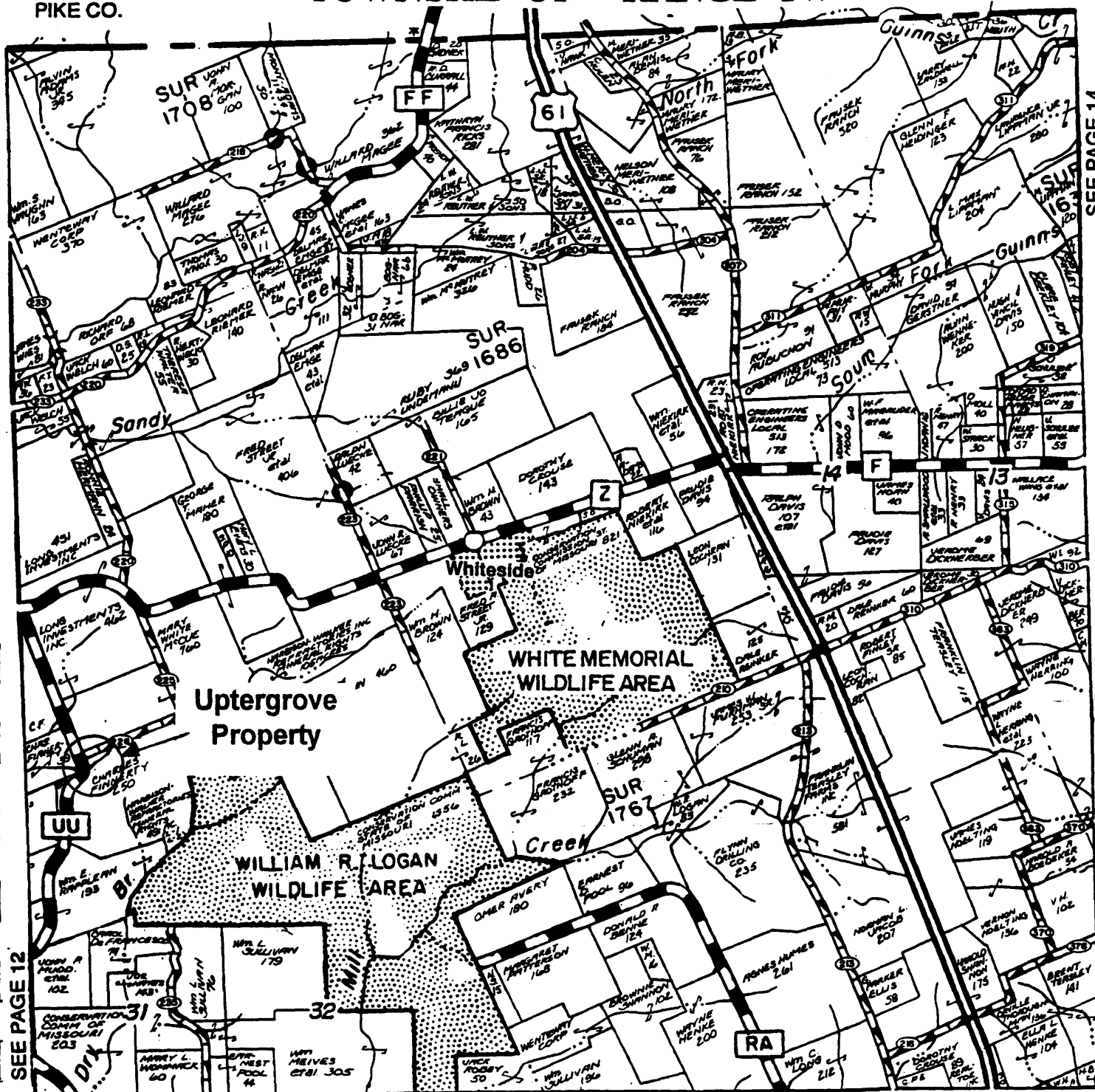
RECEIVED
FDIC

AUG 05 1998

MISSOURI LAND
RECLAMATION COMMISSION

TOWNSHIP 51 • RANGE 1W

PIKE CO.



SEE PAGE 14

SEE PAGE 12

AUG 05 1998

MISSOURI LAND
RECLAMATION COMMISSION

717

Pit

Permit Boundary

Claypit

100

694

Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Uptergrove Property

Project: Land Reclamation Permit

Location Map

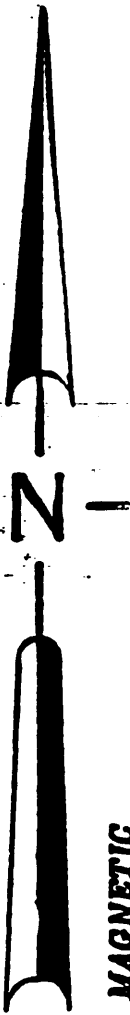
Location: Lot L-1, US Survey 1710

Lincoln County, Missouri

Designed by: DJK

Date: June 30, 1998

1"=500'



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MISSOURI LAND
RECLAMATION COMMISSION

717

Dam

Impoundment

Backfill area

Permit Boundary

Claypit

100

694

Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Uptergrove Property

Project: Land Reclamation Permit
Final Land Use

Location: Lot L-1, US Survey 1710
Lincoln County, Missouri

Designed by: DJK

Date: June 30, 1998

1"=500'

N

MAGNETIC

MISSOURI DEPARTMENT OF NATURAL RESOURCES

AUG 09 1998

LAND RECLAMATION COMMISSION

SITE INFORMATION FORM

P.O. BOX 176
MISSOURI LAND RECLAMATION COMMISSION
JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER Weant		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Montgomery	1/4 SECTION SW	SECTION 8
TOWNSHIP 48 North	RANGE 5 West	ACRES 13
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) John Weant		
ADDRESS Route 1 Box 50G		
CITY Moberly	STATE Missouri	ZIP CODE 65270
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company		
ADDRESS P.O. Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT 6/4/1996
NOTE: Each site must be sown on a map and be included in a public notice and an approved mine plan.		

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MISSOURI LAND
RECLAMATION COMMISSION

Second Landowner:

Kenneth Weant
3420 Viscount Drive
Arlington, TX 76016

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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TYPE OF PLAN (CHECK ONE):

MISSOURI LAND
RECLAMATION COMMISSION

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 08/01/2009

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY.

The site is currently in brush and timber and is being used for wildlife. The pit occurs along the ridge line where the topography is relatively flat. Topsoil in the area is fair.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be removed using bull-dozers and rubber tired scrapers. Spoil will be backfilled as mining progresses.

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MISSOURI LAND
RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

The pits are located along the center line of the ridge and are irregularly shaped in plan view.

YES NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.6(2)(D)2.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #1	Agriculture	Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

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MISSOURI LAND
RECLAMATION COMMISSION

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Wheat or Oats	25 5 30		

VEGETATION MIX #2	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #2	Agriculture	Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or Oats Serecea Lespedeza (On Slopes)	10 6 30 20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. Two impoundments will be left by the final phase of mining. The impoundments will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

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MISSOURI LAND
RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will be backfilled into a draw to the west of the pit to form a lake. Some of the spoil will be used to form an impoundment in the pit. All slopes will be graded to traversable slopes within a year of disturbance.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

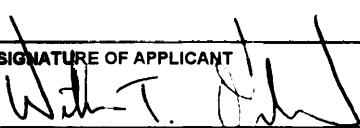

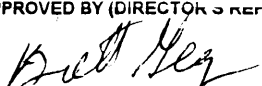
REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

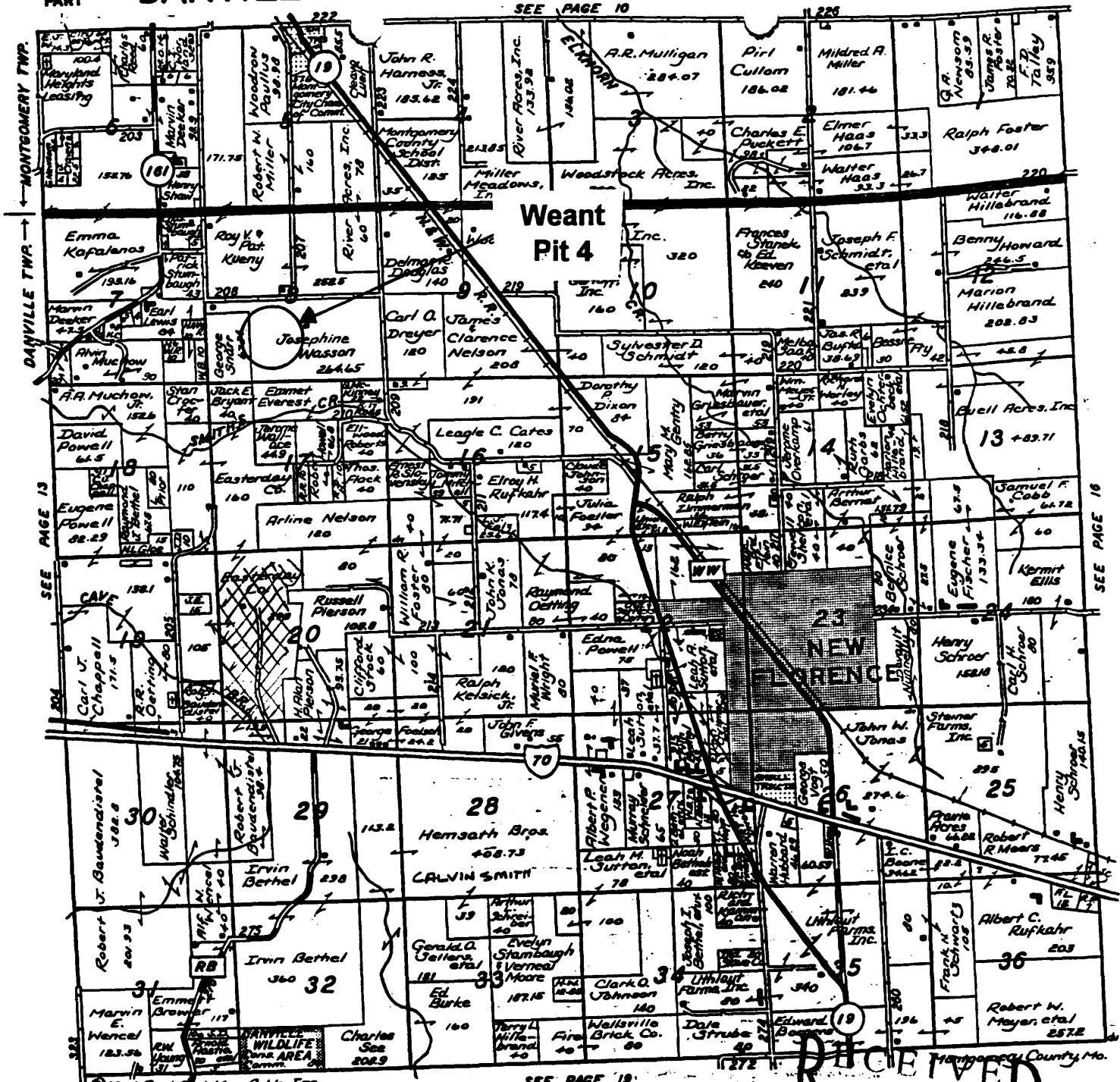
AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)**12****D. USE OF LAND WHEN RECLAIMED***Estimate acreage of each land use below, after reclamation:***ESTIMATED ACRES:****Wildlife (forest or other habitat with livestock excluded)****0****Agricultural (pasture, cropland, and horticultural)****7****Development (residential, industrial, and recreational)****0****Water impoundments (for wildlife, agricultural, or development)****6**

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT 		TITLE Manager - Mining		
NOTARY PUBLIC EMBOSSER SEAL	STATE Pennsylvania	COUNTY (OR CITY OF ST. LOUIS) Allegheny		
	SUBSCRIBED AND SWORN BEFORE ME, THIS 14 th DAY OF July 19 98		USE RUBBER STAMP IN CLEAR AREA BELOW	
	NOTARY PUBLIC SIGNATURE 	MY COMMISSION EXPIRES 11/29/01		
	NOTARY PUBLIC NAME (TYPED OR PRINTED) Kathleen S. Fuchs			
APPROVED BY (DIRECTOR'S REPRESENTATIVE) 		DATE APPROVED 9-2-98	PERMIT NUMBER 146	Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 29, 2001 Member, Pennsylvania Association of Notaries

SEE PAGE 10



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SEE PAGE 10

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Borchelt
REALTY



DALE A. BORCHELT
FARMS — HOMES — APPRAISALS
RECREATIONAL AND COMMERCIAL PROPERTY



PHONE: (314) 564-3773 or Home: (314) 564-3173

114 NORTH STURGEON STREET
MONTGOMERY CITY, MISSOURI 63361

PLATIFICATION COMMISSION

Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Weant Pit 4

Project:

Land Reclamation Permit

Location Map

Location: Sect. 8, T. 48 N., R. 5 W.

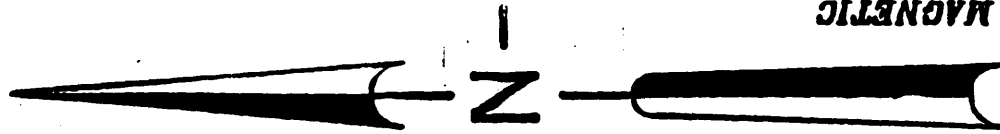
Montgomery County, Missouri

Designed by: DJK

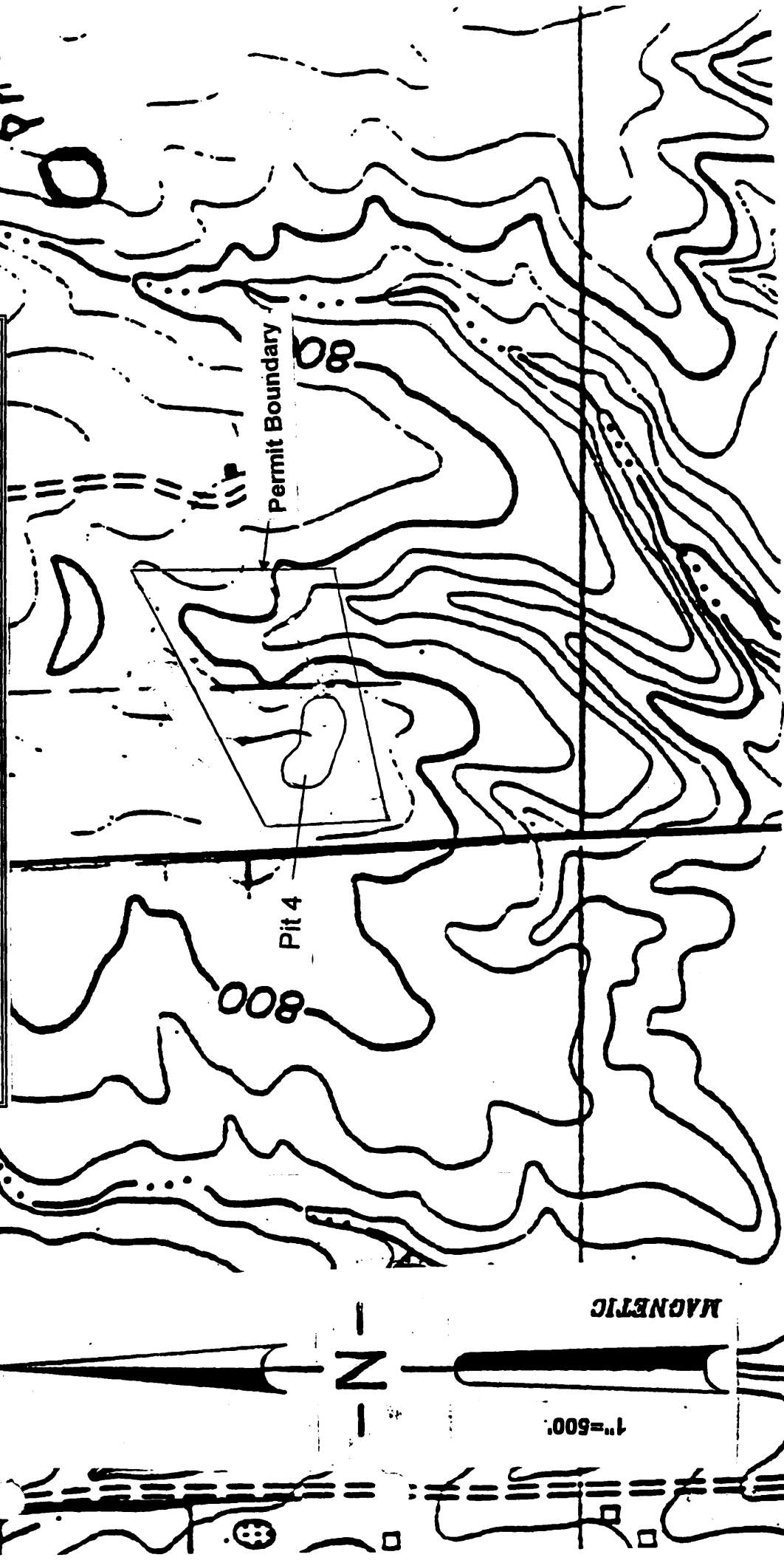
Date: June 30, 1998

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Aug 05 1998
MISSOURI LAND
RECLAMATION COMMISSION

802



1"=500'



Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Weant Pit 4

Project: Land Reclamation Permit

Final Land Use

Location: Sect. 8, T. 48 N., R. 5 W.

Montgomery County, Missouri

Designed by: DJK

Date: June 30, 1998

MISSOURI LAND
RECLAMATION COMMISSION

AUG 05 1998

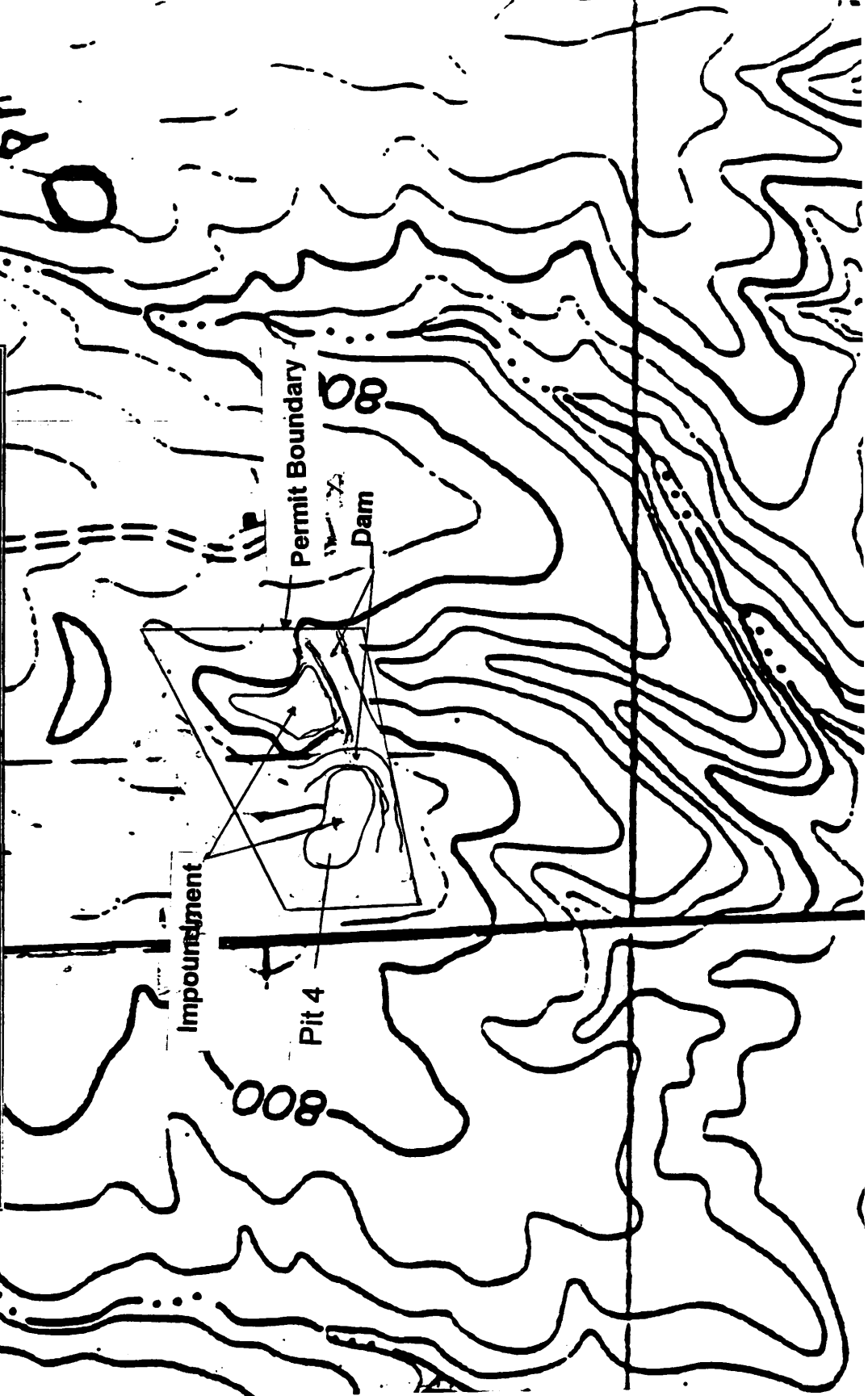
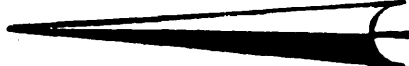
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802

1"=600'

MAGNETIC

N





MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

To be completed for each separate area of disturbance associated with mining operations.

SITE NAME OR NUMBER Wetherell, Wetherell #1 & #2		PERMIT NUMBER 79-146-A1, 81-146, 82-146, 83-146	
COMPANY NAME Harbison-Walker Refractories, a division of INDRESCO, Inc.			
COUNTY Callaway	1/4 SECTION Southeast Quarter	SECTION 7	
TOWNSHIP 46 North	RANGE 9 West	ACRES 11	
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	

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AUG 28 1992

NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE) Robert C. and Mary Clevenger			MISSOURI LAND RECLAMATION COMMISSION
ADDRESS Route 3, Box 360			
CITY Pleasant Hill	STATE Missouri	ZIP CODE 64080	
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		<input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT	DATE OF AGREEMENT 11/29/77

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE)		
ADDRESS		
CITY	STATE	ZIP CODE
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT DATE OF AGREEMENT

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2002

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

WETHERELL

This plan covers an area of approximately 11 acres total. This property had been previously mined by H. K. Porter before the 1972 law. They mined extensively in the area west and south of our Pit 1. There is also an old clay pit which borders Pit 1 on the east and Pit 2 on the north side. The land which is now Pit 1 was a wooded, gently sloping area bordering Snyder Creek. Pit 2 was a wooded hillside with slopes of 5 to 10 percent. The topsoil is fairly rich especially near the creek.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

6 - 12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Already reclaimed. Not applicable.

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AUG 28 1992

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Not applicable.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Not applicable -- in reclamation.

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

Not applicable - in reclamation.

YES NO☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2.**A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or oats	30		

REVEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or oats	30		
Use sericea lespedeza on slopes.	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

All areas above the water level have been graded to traversable slopes. A three acre lake was created by Pit 1 and a two acre lake was created by Pit 2.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Already completed.

REPLACEMENT OF TOPSOIL

Already completed.

REVEGETATION

We will continue to reseed this site each year until it is released.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)**D. USE OF LAND WHEN RECLAIMED**

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

Agricultural (pasture, cropland, and horticultural)

6

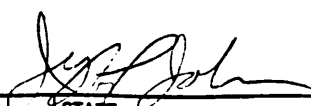
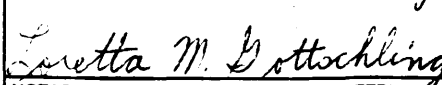
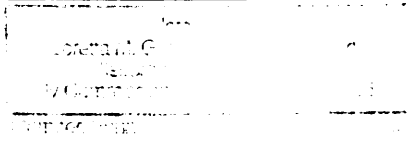
Development (residential, industrial, and recreational)

Water impoundments (for wildlife, agricultural, or development)

5

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT Jeffrey P. Jahn 		TITLE Manager- Mining & Exploration	DATE 8/17/92
NOTARY PUBLIC EMBOSSEER SEAL	STATE Pennsylvania	COUNTY (OR CITY OF ST. LOUIS) Allegheny	
	SUBSCRIBED AND SWORN BEFORE ME, THIS 17 th DAY OF August, 19 92		
	NOTARY PUBLIC SIGNATURE  Loretta M. Gottschling	MY COMMISSION EXPIRES 3-20-95	USE RUBBER STAMP IN CLEAR AREA BELOW 
	NOTARY PUBLIC NAME (TYPED OR PRINTED) Loretta M. Gottschling		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER

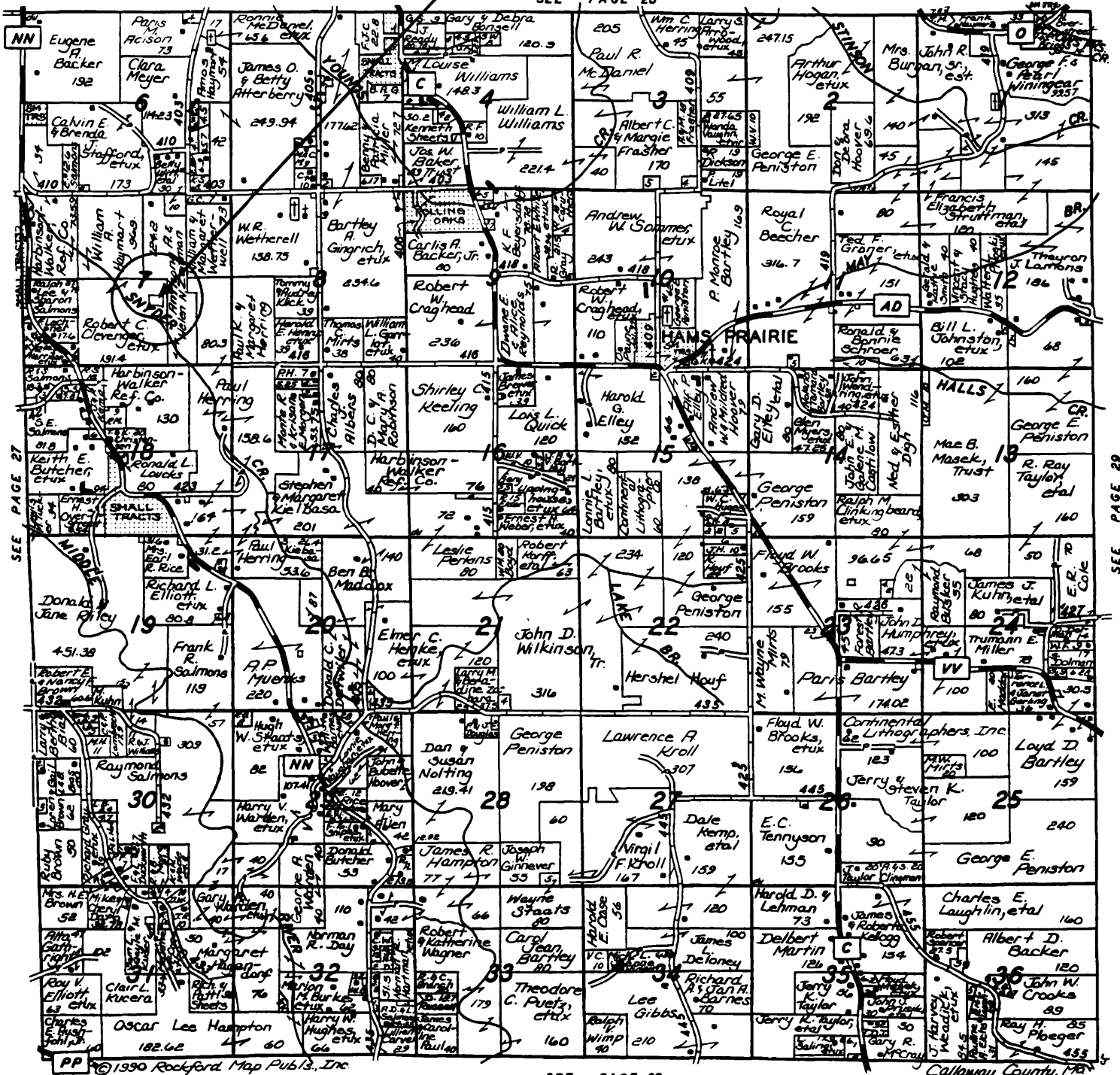
AUG 28 1992

WETHERELL

MISSOURI LAND
RECLAMATION COMMISSION

28 T. 46 N. - R. 9 W.

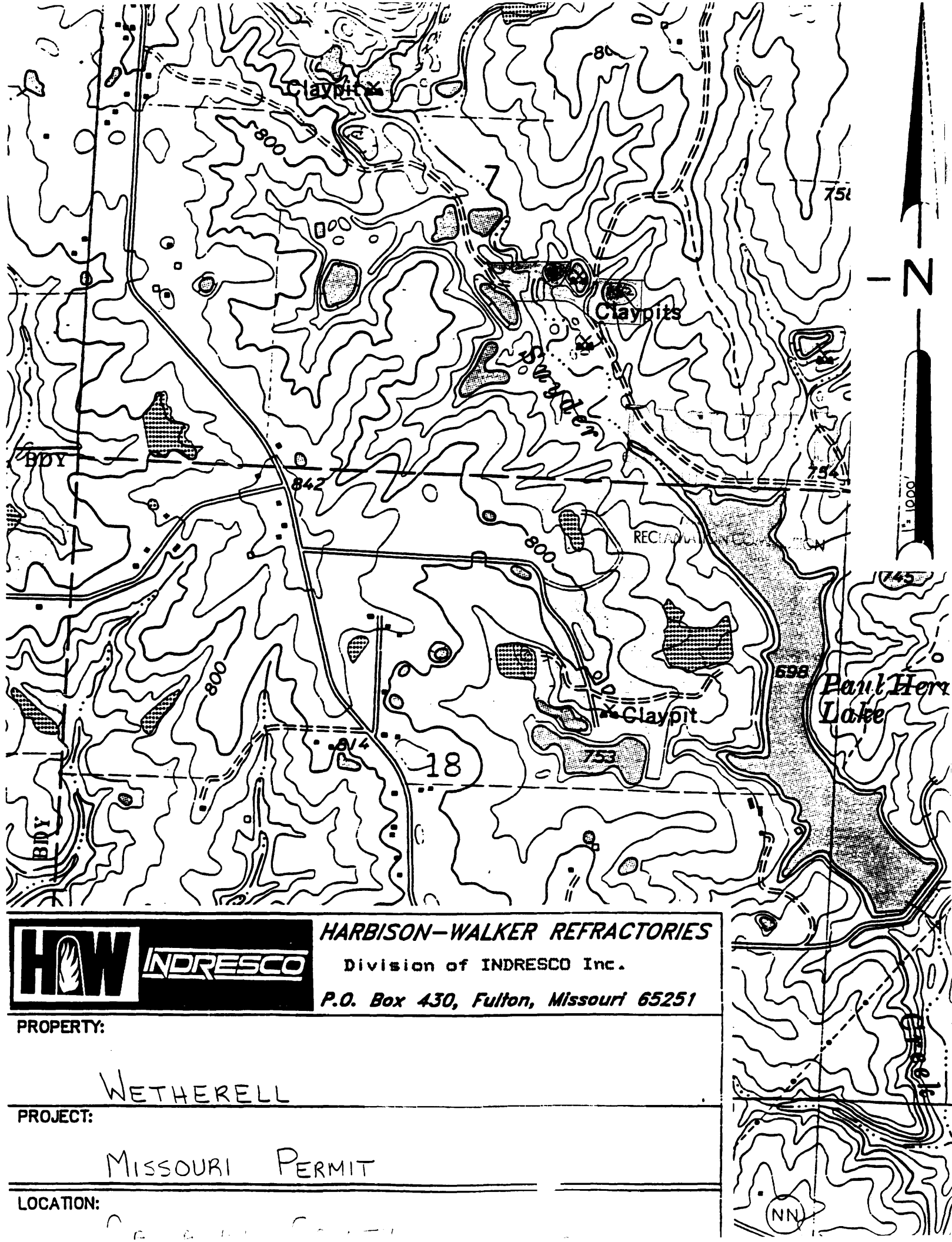
SEE , PAGE 23



62 JUL 3 1966

SEE PAGE 33

Callaway County, Mo



HARBISON-WALKER REFRACTORIES
Division of INDRESCO Inc.
P.O. Box 430, Fulton, Missouri 65251

PROPERTY:

PROJECT: WETHERELL

LOCATION: MISSOURI PERMIT



SITE NAME OR NUMBER		PERMIT NUMBER	
M. White		146	
COMPANY NAME			
Harbison-Walker Refractories, Division of INDRESCO Inc.			
COUNTY	1/4 SECTION	SECTION	
Lincoln	Lot Q-2	---	
TOWNSHIP	RANGE	ACRES	
U.S.Survey 1710		10	
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	
Clay			

ADDRESS		
Box 68		
CITY	STATE	ZIP CODE
Whiteside	Missouri	63387
SOURCE OF RIGHT TO MINE (CHECK ONE):		DATE OF AGREEMENT
<input type="checkbox"/> MINERAL DEED		
<input type="checkbox"/> LEASE		
<input type="checkbox"/> WARRANTY DEED		
<input type="checkbox"/> VERBAL AGREEMENT		
<input type="checkbox"/> OTHER (DESCRIBE): _____		

RECEIVED

JUN 25 1993

ADDRESS		MISSOURI LAND RECLAMATION COMMISSION	
P. O. Box 430, 1301 Westminster Avenue			
CITY	STATE	ZIP CODE	
Fulton	Missouri	65251	
SOURCE OF RIGHT TO MINE (CHECK ONE):			DATE OF AGREEMENT
<input type="checkbox"/> MINERAL DEED <input checked="" type="checkbox"/> LEASE			June 30, 1939
<input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> VERBAL AGREEMENT			
<input type="checkbox"/> OTHER (DESCRIBE): _____			

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2003

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

WHITE

There are three tracts encompassing ten acres covered by this plan. The five acre tract in the Northeast corner is currently planted in row crops and has slopes of less than 3 percent. An old pre-1972 law clay pit exists in the southwest corner of the 5 acres. A triangular shaped 3 acre tract in the south central portion of the property is also planted in row crops and has gentle slopes. Three very small pits will be mined on this area. The third tract is in the lower southeast corner of the property. It is mostly wooded and has gentle slopes. A pre-1972 law clay pit also exists in the southeast corner of this tract. Topsoil on all areas is thick and adequate.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed by dozers and rubber-tired scrapers and stored nearby. We will remove at least 12 inches before mining begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Topsoil will be stored in gently sloping piles. Topsoil storage piles will be seeded with annual grasses, if necessary, to control erosion.

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B. SPOIL**DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL**

The spoil from the excavation will be placed in the pre-1972 law pits or the previously mined portions of the area being permitted and graded to gentle slopes. The spoil will be moved using dozers and rubber-tired scrapers. If the old pits become full or unavailable, the spoil will be placed on the lower end of the pit to form a small dam. All spoil areas will be final graded to traversable slopes.

C. ACID MATERIALS**DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)**

None.

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)**DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS**

One large pit approximately 400 feet long by 200 feet wide is on the 5 acre tract. Three small pits approximately 100 feet in diameter are on the triangular tract. One pit approximately 200 feet in diameter is on the 2 acre tract in the lower southeast corner.

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YES NO

☐ ☒ Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐ ☒ Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐ ☒ Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2**A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or oats	30		

REVEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10	RECEIVED JUN 25 1993 MISSOURI LAND RECLAMATION COMMISSION	
Korean Lespedeza	6		
Wheat or oats	30		
Use sericea lespedeza on slopes.	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A small impoundment will be left in each of the three areas by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using dozers. Terraces and diversion ditches will be constructed as necessary to control runoff and erosion. Fescue hay bales will be used to control rillings and gullies.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as the pit advances and as spoil is placed in the mined out areas. Final grading will be completed within one year after mined out portions are backfilled.

REPLACEMENT OF TOPSOIL

Topsoil will be laid down within one year after each area is final graded. Topsoil will be replaced to a depth of 12 inches. Topsoil will be replaced within one year of final grading.

REVEGETATION

All topsoiled areas will be seeded during the first Spring or Fall following topsoil replacement.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

12 inches

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

Agricultural (pasture, cropland, and horticultural)

Development (residential, industrial, and recreational)

Water impoundments (for wildlife, agricultural, or development)

4

6

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RECLAMATION COMMISSION

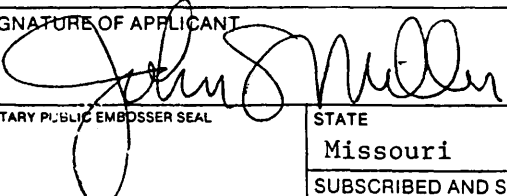
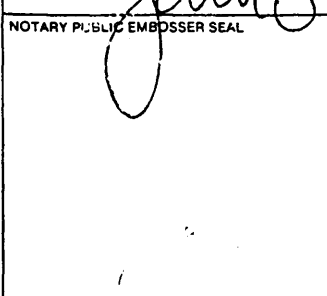
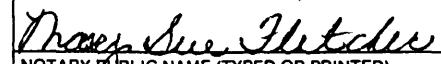
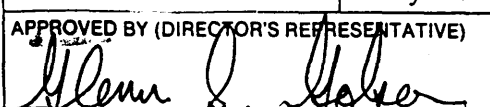
By my signature, I attest to the following:

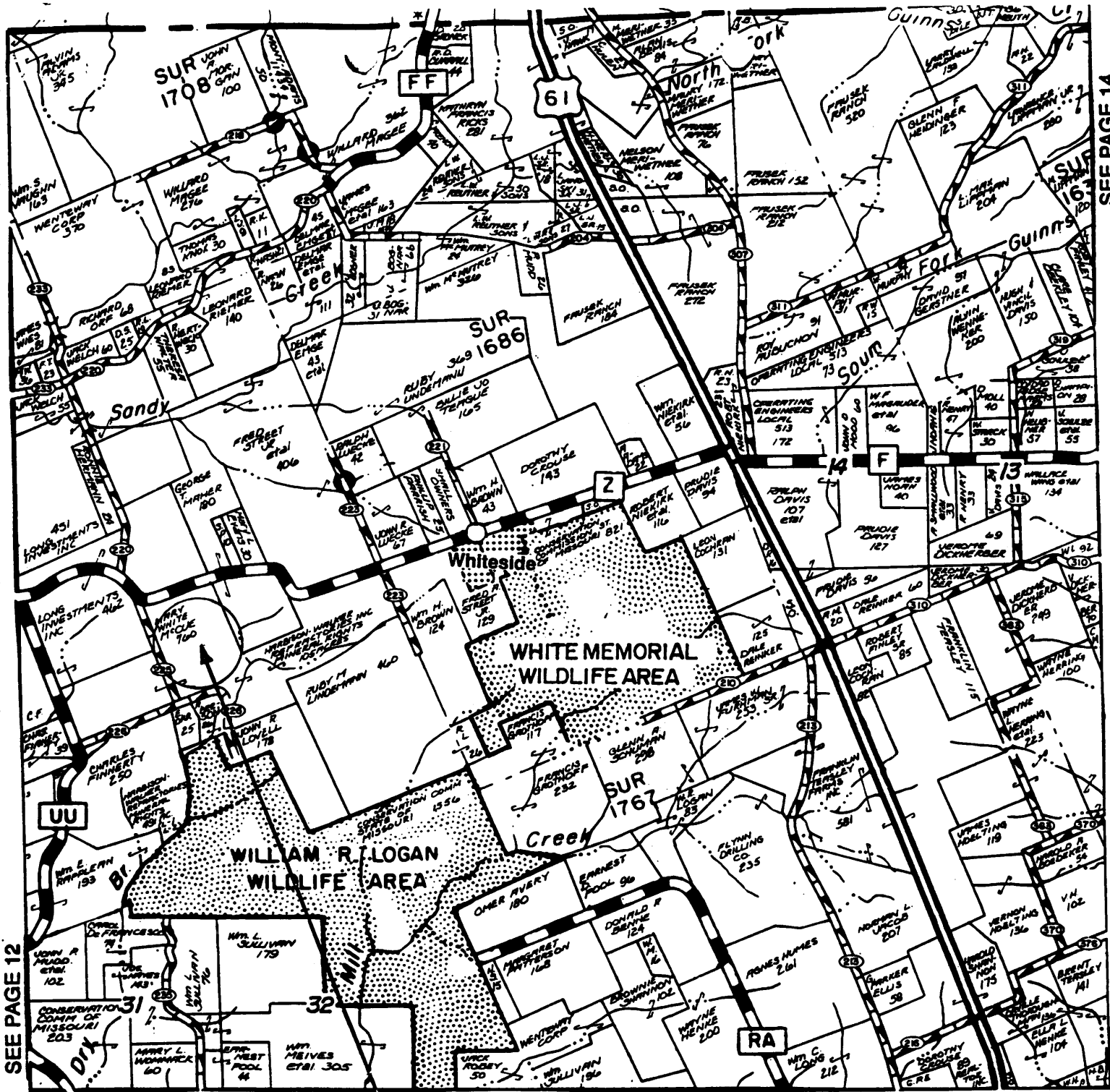
1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

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RECLAMATION COMMISSION

SIGNATURE OF APPLICANT 		TITLE Vice-President-Manufacturing	DATE June 15, 1993
NOTARY PUBLIC EMBOSSEER SEAL 	STATE Missouri		COUNTY (OR CITY OF ST. LOUIS) Callaway
	SUBSCRIBED AND SWORN BEFORE ME, THIS 15th DAY OF June 1993		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE 	MY COMMISSION EXPIRES 04/11/1996	MARY SUE FLETCHER NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY MY COMMISSION EXP. APR. 11, 1996
	NOTARY PUBLIC NAME (TYPED OR PRINTED) Mary Sue Fletcher		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) 		DATE APPROVED 7-8-93	PERMIT NUMBER 146



© 1989 Mull Map Service

SEE PAGE 18

13

WHITE

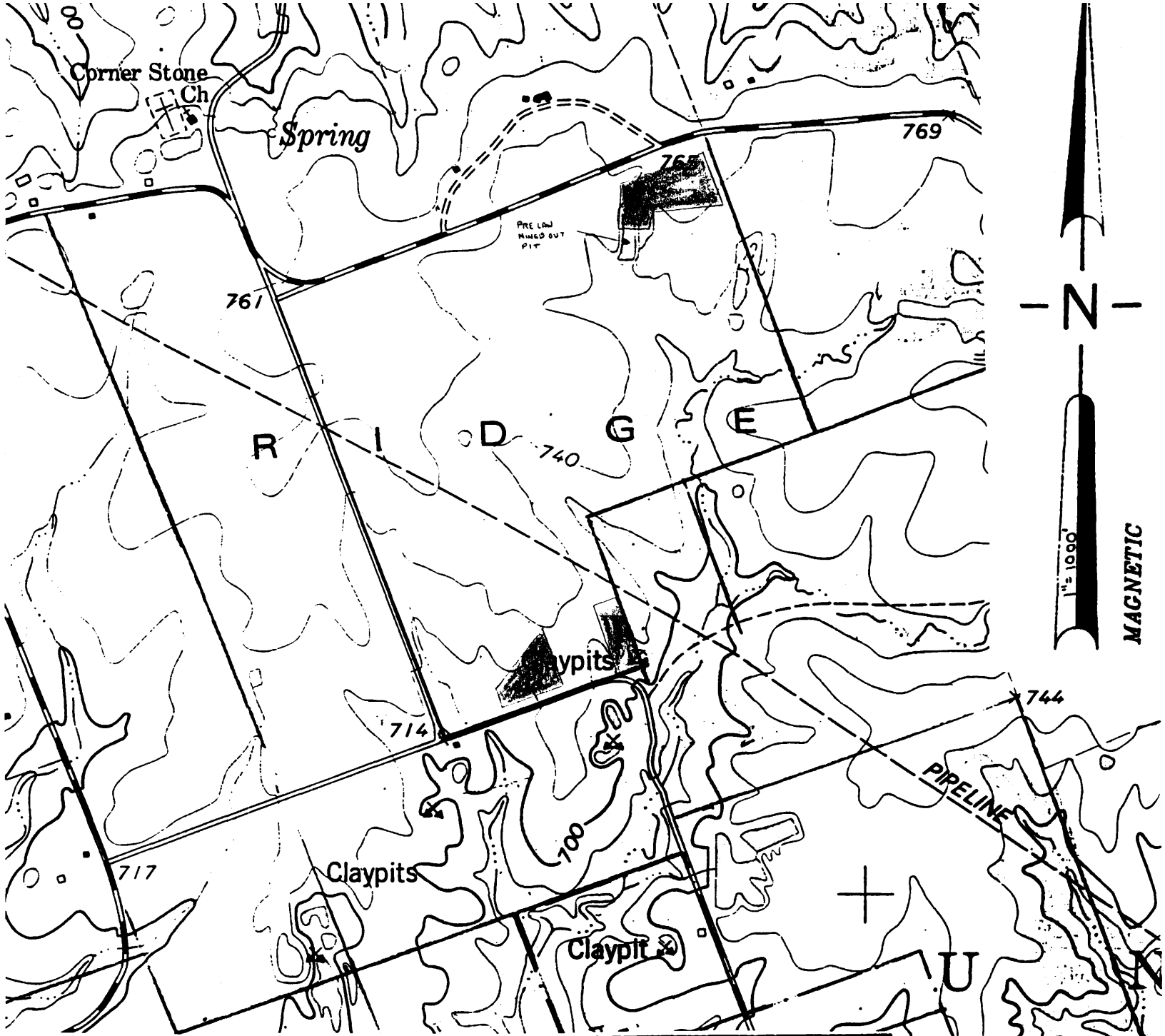
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MISSOURI LAND
RECLAMATION COMMISSION



HARBISON-WALKER REFRACTORIES

Division of INDRESCO Inc.

P.O. Box 430, Fulton, Missouri 65251

PROPERTY:

WHITE

PROJECT:

MISSOURI DNR PERMIT

LOCATION:

LINCOLN Co.

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MISSOURI LAND
RECLAMATION COMMISSION

6-7-93 W.T.O.

lake
Vo I
ipground

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

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P.O. BOX 176
JEFFERSON CITY, MO 65102

MISSOURI LAND

RECLAMATION COMMISSION

SITE NAME OR NUMBER

Wildore Realty Pit 3&4

REPORT NUMBER

146

COMPANY NAME

Harbison-Walker Refractories Company

COUNTY

Warren

1/4 SECTION

SE

SECTION

33

TOWNSHIP

47 North

RANGE

3 West

ACRES

14

RIVER OR STREAM NAME (FOR IN-STREAM ACRES)

MINERAL COMMODITY

Fire Clay

ESTIMATED TONS/YEAR (FOR GRAVEL SITES)

NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE)

John and Helena Zadarnowski

ADDRESS

1006 Mackinac Rd.

CITY

Creve Coeur

STATE

Missouri

ZIP CODE

63146

SOURCE OF RIGHT TO MINE (CHECK ONE):

☐ MINERAL DEED

☒ LEASE

☐ WARRANTY DEED

☐ VERBAL AGREEMENT

☐ OTHER (DESCRIBE):

DATE OF AGREEMENT

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE)

Harbison-Walker Refractories Company

Same as above

As per David Hill
7-29-97
H.W.

ADDRESS

P.O. Box 430

CITY

Fulton

STATE

Missouri

ZIP CODE

65251

SOURCE OF RIGHT TO MINE (CHECK ONE):

☐ MINERAL DEED

☒ LEASE

☐ WARRANTY DEED

☐ VERBAL AGREEMENT

☐ OTHER (DESCRIBE):

November 12, 1937

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION

PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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RECLAMATION COMMISSION

TYPE OF PLAN (CHECK ONE):

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 03/01/2007

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY

The site is moderately sloping with a deep draw draining the site to the west. All of the site is in open timber.
The soil is typical for the area with soil thinning with increasing slope.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil will be removed using rubber-tired scrapers and bulldozers. The topsoil will be stored near the pit within the permit area. We will remove the 12 inches of surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be moved using rubber-tired scrapers and bull dozers to form a backfill area to the west of pit 3. Some of the spoil will be used to make a dam to the west of pit 3 the remainder of the spoil will be used to backfill Pit 4.

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RECREATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

Pit #3 is located in the eastern part of the reservation while pit 4 is located on the south of the reservation.

YES

NO

☐

☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐

☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐

☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

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RECLAMATION PLAN - 10 CSR 40-10.020(2) 12.

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Development

MISSOURI LAND

RECLAMATION COMMISSION

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or Oats	30		

VEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Development

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or Oats	30		
Serecea Lespedeza (On Slopes)	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING

DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. A small impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

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C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES

GRADING

Grading will be done as mining advances and spoil is either backfilled or put into a dam. Final grading of all disturbed areas will be completed within one year after mining.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)

12

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation:

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

0

Development (residential, industrial, and recreational)

10

Water impoundments (for wildlife, agricultural, or development)

4

By my signature, I attest to the following:

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MISSOURI LAND
RECLAMATION COMMISSION

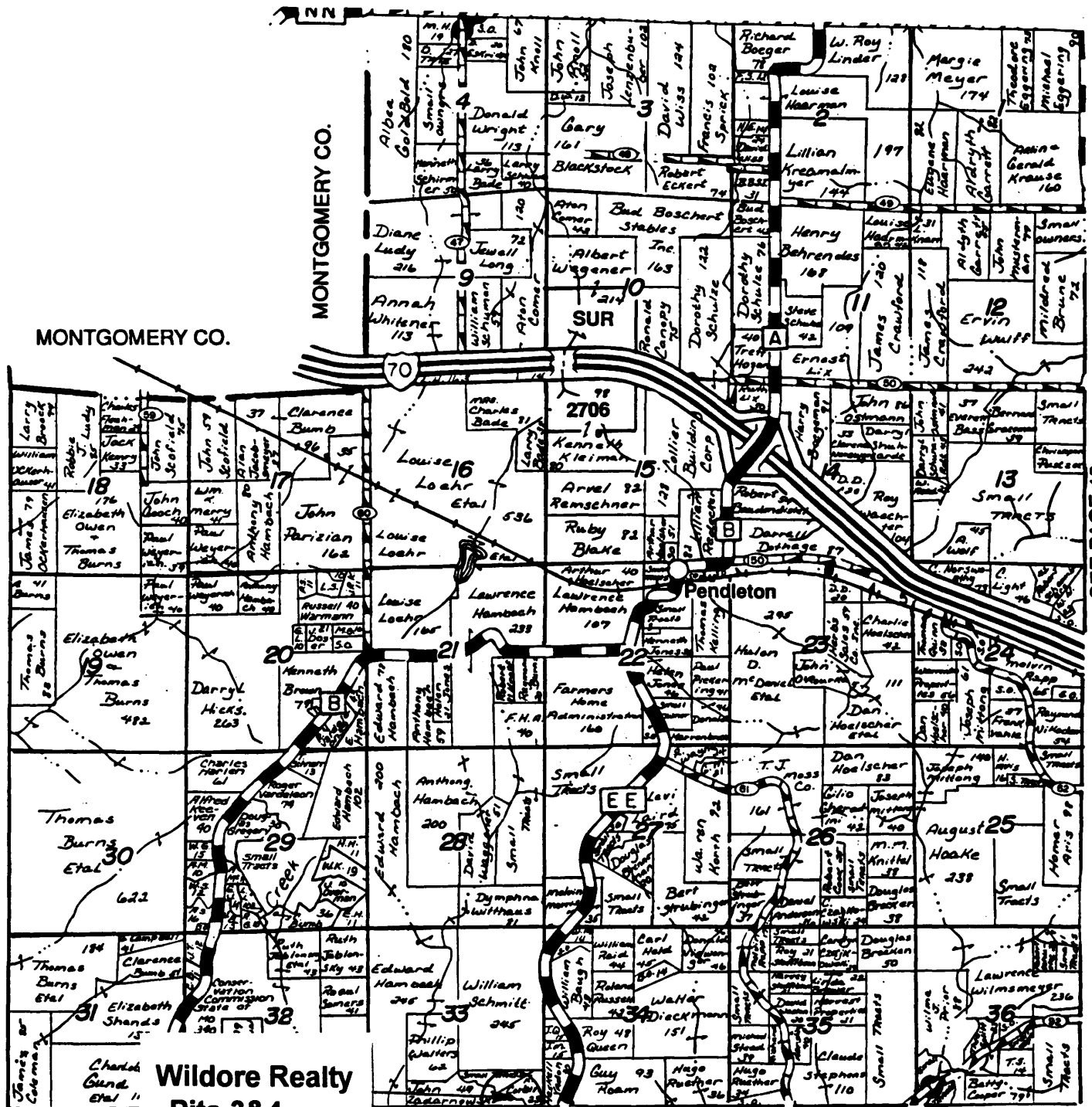
1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access

SIGNATURE OF APPLICANT x <i>William K. Brown</i>		TITLE <i>Vice President</i>		DATE <i>7/3/97</i>	
NOTARY PUBLIC EMBOSSEER SEAL		STATE <i>Pennsylvania</i>		COUNTY (OR CITY OF ST. LOUIS) <i>Allegheny</i>	
SUBSCRIBED AND SWORN BEFORE ME, THIS <i>3RD</i> DAY OF <i>JULY</i> 19 <i>97</i>		USE RUBBER STAMP IN CLEAR AREA BELOW			
NOTARY PUBLIC SIGNATURE <i>Kathleen S. Fuchs</i>		MY COMMISSION EXPIRES <i>11/29/97</i>		<div style="border: 1px solid black; padding: 5px;">Notarial Seal Kathleen S. Fuchs, Notary Public Pittsburgh, Allegheny County My Commission Expires Nov. 29, 1997 Member, Pennsylvania Association of Notaries</div>	
NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Kathleen S. Fuchs</i>					
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>William Skubli</i>		DATE APPROVED <i>7-29-97</i>		PERMIT NUMBER <i>146</i>	
				EXPIRATION DATE <i>7-31-2007</i>	

JUL 11 1997

MISSOURI LAND
RECLAMATION COMMISSION

SEE PAGE 8

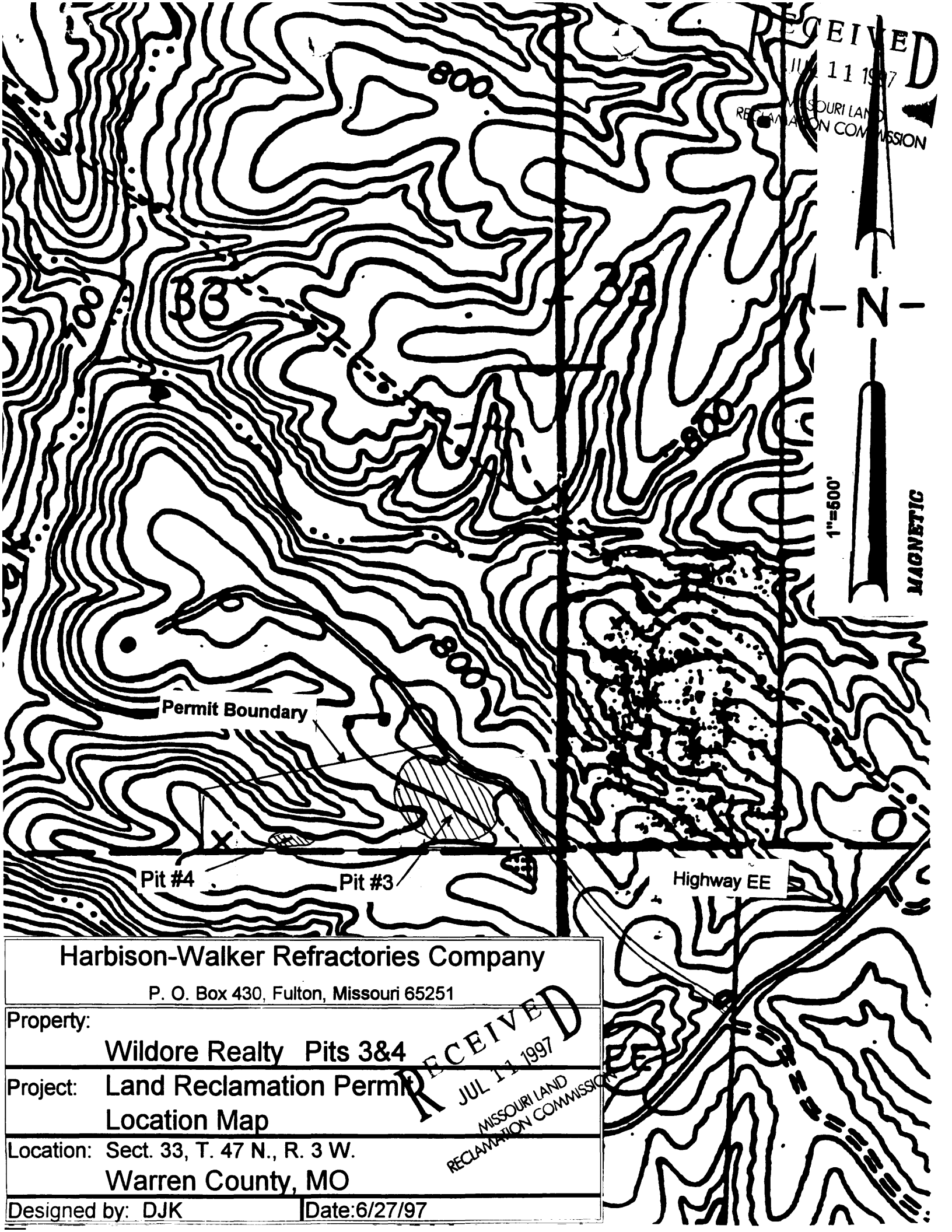
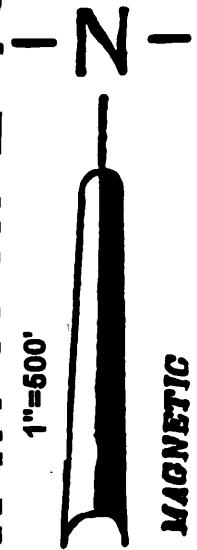


SEE PAGE 10

SEE PAGE 12

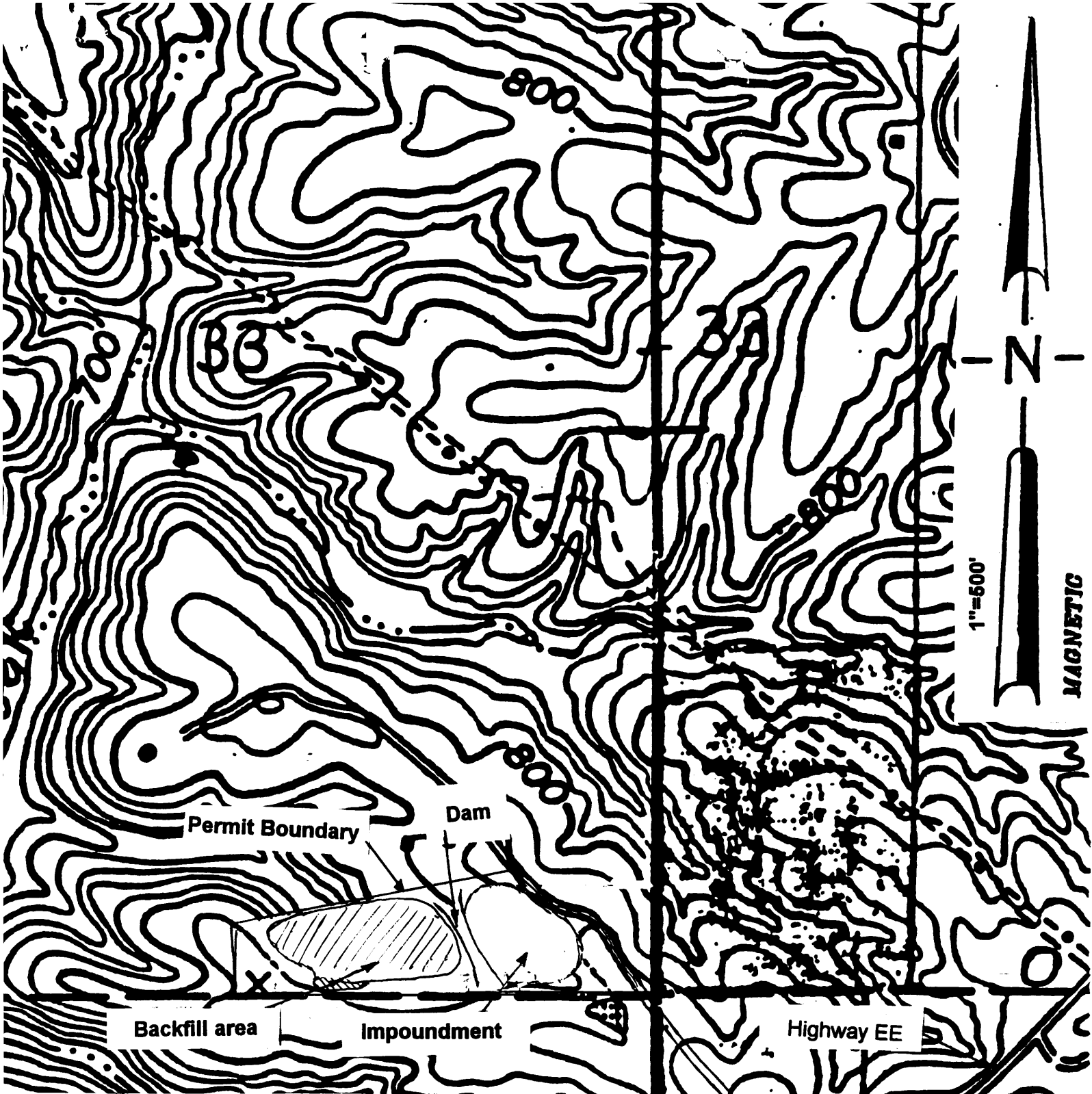
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RECLAMATION COMMISSION



Harbison-Walker Refractories Company	
P. O. Box 430, Fulton, Missouri 65251	
Property:	Wildore Realty Pits 3&4
Project:	Land Reclamation Permit Location Map
Location:	Sect. 33, T. 47 N., R. 3 W. Warren County, MO
Designed by:	DJK
Date:	6/27/97

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Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Wildore Realty Pits 3&4

Project: Land Reclamation Permit
Final Land Use

Location: Sect. 33, T. 47 N., R. 3 W.
Warren County, MO

Designed by: DJK

Date: 6/27/97

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RECLAMATION COMMISSION

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

RECEIVED
JAN 12 2000
MISSOURI
P.O. BOX 178 MA
JEFFERSON CITY, MO 65102

SITE NAME OR NUMBER Woodruff #1		PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company		
COUNTY Maries	1/4 SECTION NE 1/4	SECTION 32
TOWNSHIP 40 N	RANGE 7 W	ACRES 4
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)		
MINERAL COMMODITY Fire Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) Mr. Jerry Wiles		
ADDRESS Route 2, Box 21		
CITY Vichy	STATE MO	ZIP CODE 65580
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company		
ADDRESS P.O. Box 430		
CITY Fulton	STATE Missouri	ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input checked="" type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT 05/30/73
NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.		

MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

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RECLAMATION COMMISSION

TYPE OF PLAN (CHECK ONE)

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: 12/31/2050

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY

The soil is rocky loam, vegetation consists of small timber with typical underbrush. Slopes are moderate and slope toward the north.

OPERATION PLAN - TO CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

-12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Prior to topsoil removal and immediately following any clearing of vegetation, appropriate sediment control measures will be installed including straw bale dikes, silt fences, rock check dams or sediment basins in any combination depending on site specific conditions. Topsoil will be removed using rubber-tired scrapers and/or bulldozers. The topsoil will be stored near the pit within the permitted pit area. We will remove the surficial material from all areas to be disturbed before mining or stripping begins.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded if necessary with a cover crop to control any erosion.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Spoil will be stockpiled adjacent to the excavation and within the permit boundary to form a dam to the north of the pit. After mining is completed the spoil will be graded into a dam or backfilled in the pit as is warranted.

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RECLAMATION COMMISSION

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

(See site maps)

YES

NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☐☒

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

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MISSOURI LAND RECLAMATION COMMISSION

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Wildlife

B. SEEDING OR PLANTING TIME
Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Orchardgrass	10		
Timothy	10		
Red Clover	5		
Korean Lespedeza	5		
Wheat or Oats	30		
Serecea Lespedeza (on slopes)	10		

VEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Wildlife

B. SEEDING OR PLANTING TIME

Spring or Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIE	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or Oats	30		
Serecea Lespedeza (On Slopes) (On Slopes)	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. An impoundment will be left by the final phase of mining. The impoundment will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion. In no case will the reclaimed topography exceed a 3:1 slope.

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C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas or put into a dam to create an impoundment. Final grading of all disturbed areas will be completed within one year after mining. Areas affected, and no longer needed as part of the active operation will be graded within one year of the expiration of the permit during which the disturbance occurred.

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and/or bulldozers after mining is completed as described in accordance with MO 10CSR-40.10.050 (A)(10)(A).

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES) -12"

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation:

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

3

Agricultural (pasture, cropland, and horticultural)

0

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

1

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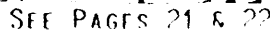
By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

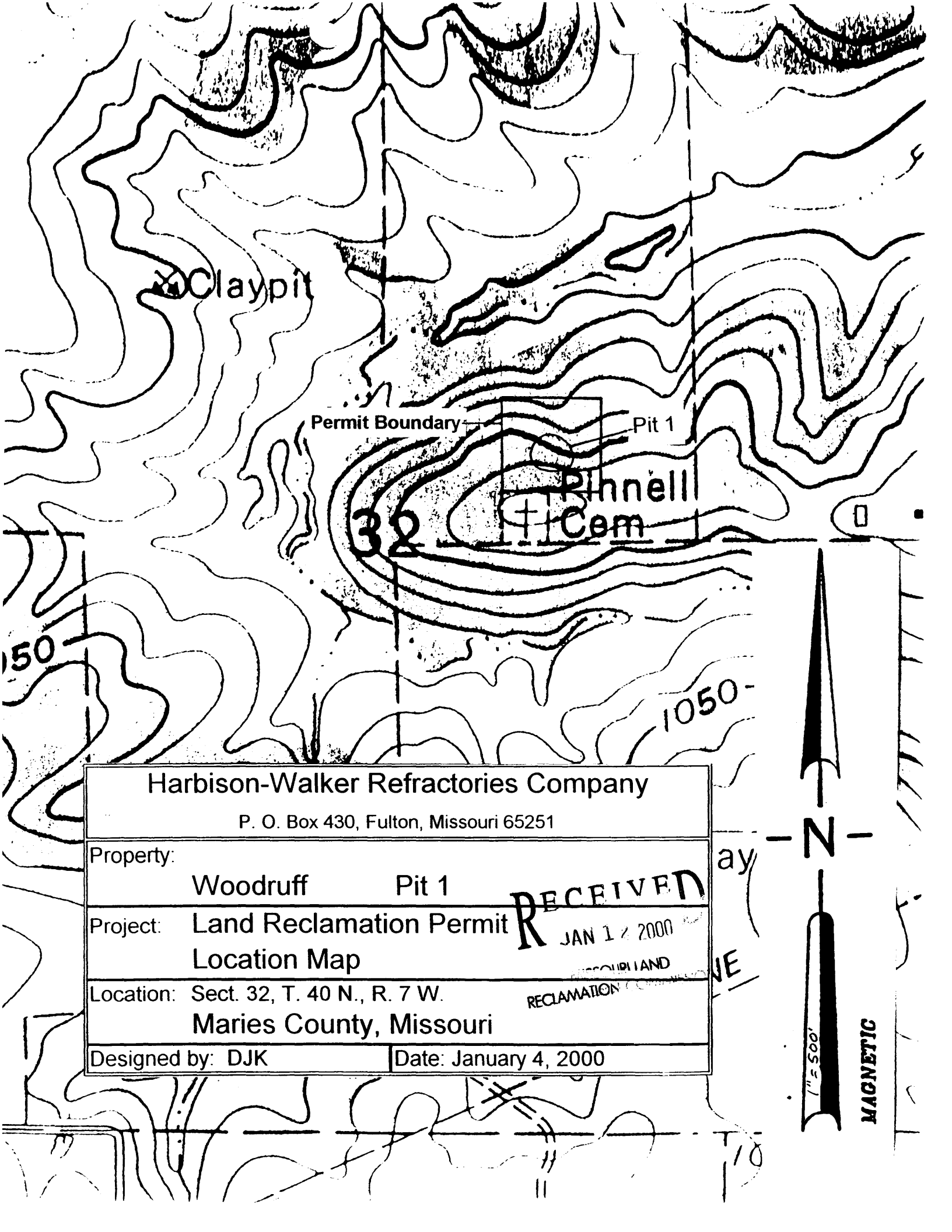
1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT <i>[Signature]</i>		TITLE <i>Mine Supervisor</i>	
NOTARY PUBLIC EMBOSSEER SEAL	STATE <i>Missouri</i>		COUNTY (OR CITY OF ST. LOUIS) <i>Callaway</i>
	SUBSCRIBED AND SWORN BEFORE ME, THIS 11 DAY OF <i>January</i> 20 00		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Karen S Luther</i>	MY COMMISSION EXPIRES <i>7-18-03</i>	KAREN S. LUTHER NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY MY COMMISSION EXPIRES JULY 18, 2003
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Karen S Luther</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER

4



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Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Woodruff Pit 1

Project: Land Reclamation Permit

Location Map

Location: Sect. 32, T. 40 N., R. 7 W.

Maries County, Missouri

Designed by: DJK

Date: January 4, 2000

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RECLAMATION

Claypit

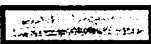

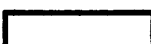

Dam

Permit Boundary

Impoundment

Phnell
Com

Final land use legend

-  Wildlife
-  Agriculture
-  Development
-  Water Impoundment

Harbison-Walker Refractories Company

P. O. Box 430, Fulton, Missouri 65251

Property:

Woodruff Pit 1

Project: Land Reclamation Permit
Final Land Use

Location: Sect. 32, T. 40 N., R. 7 W.

Maries County, Missouri

Designed by: DJK

Date: January 4, 2000

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MISSOURI LAND
RECLAMATION COMMISSION

1" = 500'

MAGNETIC



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
SITE INFORMATION FORM

To be completed for each separate area of disturbance associated with mining operations.

SITE NAME OR NUMBER Zimmerman #1		PERMIT NUMBER 75-146, 74,146-A,	
COMPANY NAME Harbison-Walker Refractories, Division of INDRESCO, Inc.			
COUNTY Montgomery	1/4 SECTION Northeast Quarter	SECTION 3	
TOWNSHIP 47 North	RANGE 5 West	ACRES 10	
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY Clay		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	

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NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE) Clark Johnson			MISSOURI LAND RECLAMATION COMMISSION	
ADDRESS P. O. Box 45				
CITY New Florence		STATE Missouri	ZIP CODE 63363	
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):			<input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT	DATE OF AGREEMENT 5-13-74

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Same as above.		
ADDRESS		
CITY	STATE	ZIP CODE
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):		<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT DATE OF AGREEMENT

NOTE: Each site must be shown on a map and be included in a public notice and an approved mine plan.



MISSOURI DEPARTMENT OF NATURAL RESOURCES
LAND RECLAMATION COMMISSION
MINE PLAN

P.O. BOX 176
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR
☒ LONG TERM, FOR PERIOD THROUGH DATE: August 1, 2002

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

ZIMMERMAN #1

This plan covers an area of 10 acres total. The site is a relatively flat pasture on a ridge. The southeast portion of the site is a wooded ravine. Topsoil is a rich clay. A gravel county road borders the site on the north side. This site was mined prior to 1990 and has been graded and seeded.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

18 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Already reclaimed - Not applicable.

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RECLAMATION COMMISSION

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Already reclaimed - Not applicable.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

Not applicable - in reclamation.

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

Not applicable - in reclamation.

D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

Not applicable - in reclamation.

YES NO☐ ☒ Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?☐ ☒ Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-½) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)☐ ☒ Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.020(2)(D)2**A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1

Mixture #1

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue	25		
Red Clover	5		
Wheat or oats	30		

REVEGETATION MIX #2

Mixture #2

PURPOSE OR LAND USE

Pasture

B. SEEDING OR PLANTING TIME

Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be drilled in with a no-till drill. Reseeding will be done as needed to control erosion and achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass	10		
Korean Lespedeza	6		
Wheat or oats	30		
Use sericea lespedeza on slopes.	20		

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

B. GRADING**DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES**

All slopes above the anticipated water level have been graded to 3 to 1 or less. A dam was built on the south end of the pit to increase the size of the impoundment. The watershed of this pit is small and it will take quite a while for the pit to fill up.

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES**GRADING**

Done.

REPLACEMENT OF TOPSOIL

Done.

REVEGETATION

We plan to reseed this pit each year until a suitable stand is achieved.

AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

6 to

D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

Agricultural (pasture, cropland, and horticultural)

5

Development (residential, industrial, and recreational)

Water impoundments (for wildlife, agricultural, or development)


5

By my signature, I attest to the following:

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT Jeffrey P. Jahn		TITLE Manager- Mining & Exploration	DATE 8/17/92
NOTARY PUBLIC EMBOSSEER SEAL	STATE Pennsylvania	COUNTY (OR CITY OF ST. LOUIS) Allegheny	
	SUBSCRIBED AND SWORN BEFORE ME, THIS 17th DAY OF August, 1992		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE Loretta M. Gottschling	MY COMMISSION EXPIRES 3-20-95	
	NOTARY PUBLIC NAME (TYPED OR PRINTED) Loretta M. Gottschling		
APPROVED BY (DIRECTOR'S REPRESENTATIVE)		DATE APPROVED	PERMIT NUMBER





HARBISON-WALKER REFRACTORIES
 Division of INDRESCO Inc.
 P.O. Box 430, Fulton, Missouri 65251

PROPERTY:

ZIMMELMAN PIT #1 (SOUTH OF ROAD)

PROJECT:

MISSOURI PERMIT

LOCATION:

MONTECALM COUNTY





9. & 10A. The discrepancy between last year's permit and this year's permit was caused by the fact that we have two pits on different sites both named Zimmerman #1. The following pits listed on last year's permit are on the same site, Zimmerman #1 (South of Road).

<u>PIT</u>	<u>ACRES</u>	<u>PERMIT NO.</u>
Zimmerman #1	5	74-146-A
Zimmerman #1	5	75-146

The following pits are on the Zimmerman #5 (North of Road) site.

<u>PIT</u>	<u>ACRES</u>	<u>PERMIT NO.</u>
Zimmerman	2	77-146
Zimmerman #1	3	79-146
Zimmerman #5	4	81-146-A

I regret the confusion this may have caused.

10. B. A revised page 4 of 5 is enclosed. We will replace 12 inches of topsoil.
11. A. I changed the land use on two acres of this site to wildlife. An additional page 3 of 5 and a revised page 4 of 5 are enclosed.
- B. The revised page 4 of 5 from Question 11A, also has the topsoil replacement depth changed to 12 inches.
12. The reclaimed land use on one acre of this site has been changed to wildlife. An additional page 3 of 5 and a revised page 4 of 5 is enclosed.
13. Yes, a variance has been applied for on this site. A revised page 4 of 5 is enclosed.
14. We have not applied for a variance on the Stockton #1 site. The pit is graded to traversable slopes and has been seeded. The water level has to raise and additional seeding will be required before this site can be released. Grading of gullies and installation of terraces may also be required.
15. Yes, a variance has been applied for on this site. A revised page 4 of 5 is enclosed.
16. A. See response to Question 4.
- B. A revised page 4 of 5 is enclosed. We always take a soil test to determine the proper treatment.

MISSOURI DEPARTMENT OF NATURAL RESOURCES

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AUG 30 2000

P.O. BOX 176
JEFFERSON CITY, MO 65102

SITE INFORMATION FORM

SITE NAME OR NUMBER Zimmerman 5 and North of Road		MISSOURI LAND RECLAMATION COMMISSION	PERMIT NUMBER 146
COMPANY NAME Harbison-Walker Refractories Company			
COUNTY Montgomery	1/4 SECTION		SECTION
TOWNSHIP Sect. 3, T. 47 N., R. 5 W. (27 acres) Sect. 34 T. 48 N., R. 5 W. (13 acres)	RANGE		ACRES 40
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY Fire Clay			ESTIMATED TONS/YEAR (FOR GRAVEL SITES)
NAME OF LANDOWNER (ATTACH A LIST IF MORE THAN ONE) See Attachment			
ADDRESS			
CITY	STATE		ZIP CODE
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):			DATE OF AGREEMENT <input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE) Harbison-Walker Refractories Company			
ADDRESS P.O. Box 430			
CITY Fulton	STATE Missouri		ZIP CODE 65251
SOURCE OF RIGHT TO MINE (CHECK ONE): <input type="checkbox"/> MINERAL DEED <input type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE):			DATE OF AGREEMENT See Attached <input checked="" type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT
NOTE: Each site must be sown on a map and be included in a public notice and an approved mine plan.			

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MISSOURI LAND
RECLAMATION COMMISSION

Parcel 1 (refer to map)

Landowners

Dale and Madaline Strube
Strube Road
New Florence, MO 63363

Mineral Instrument

Mineral Lease to Wellsville Firebrick Company
Dated 7/24/56 assigned to Harbison-Walker
Refractories Company

Parcel 2 & 3

Landowners

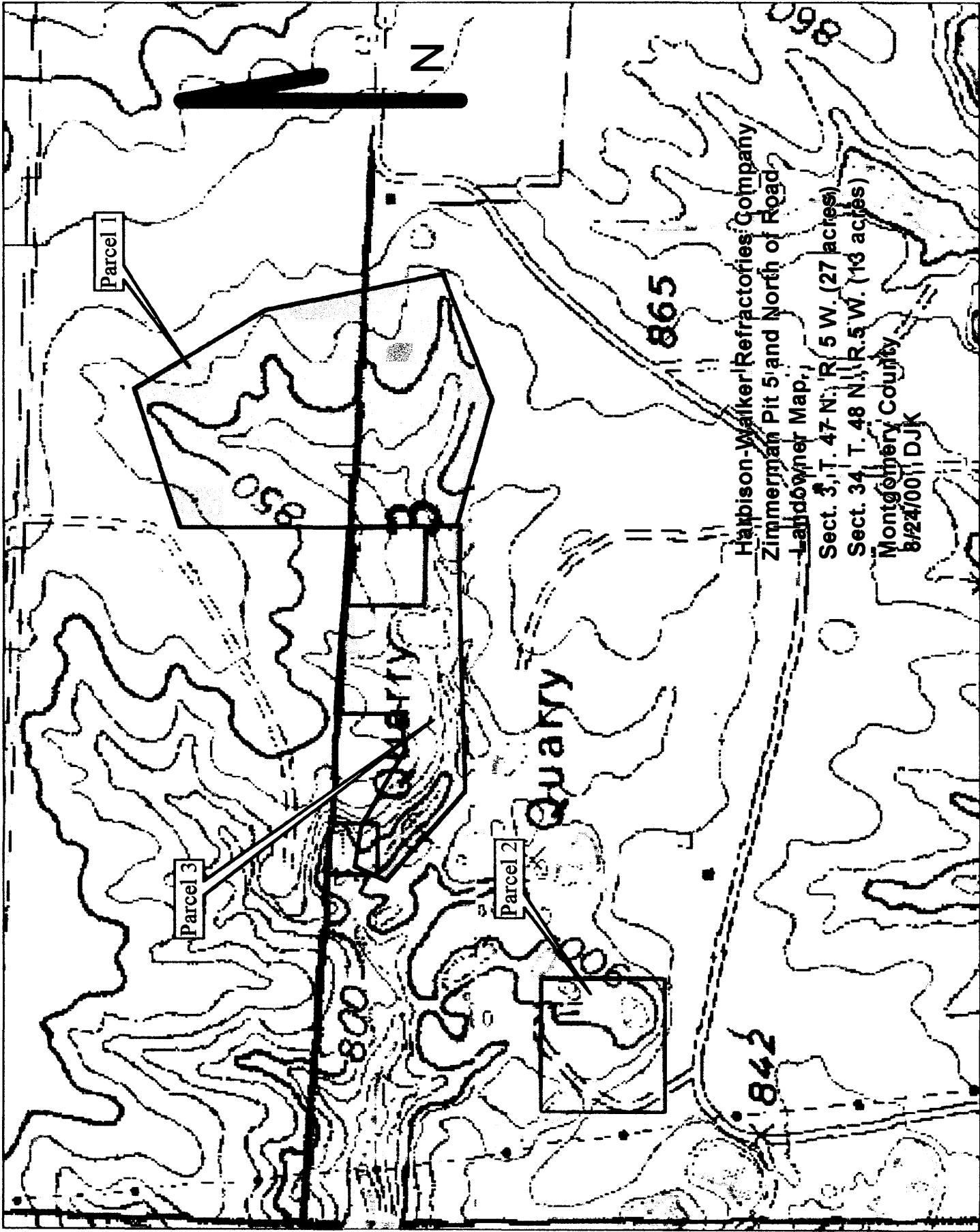
Gale and Michelle Johnson
201 North Main Street
New Florence, MO 63363

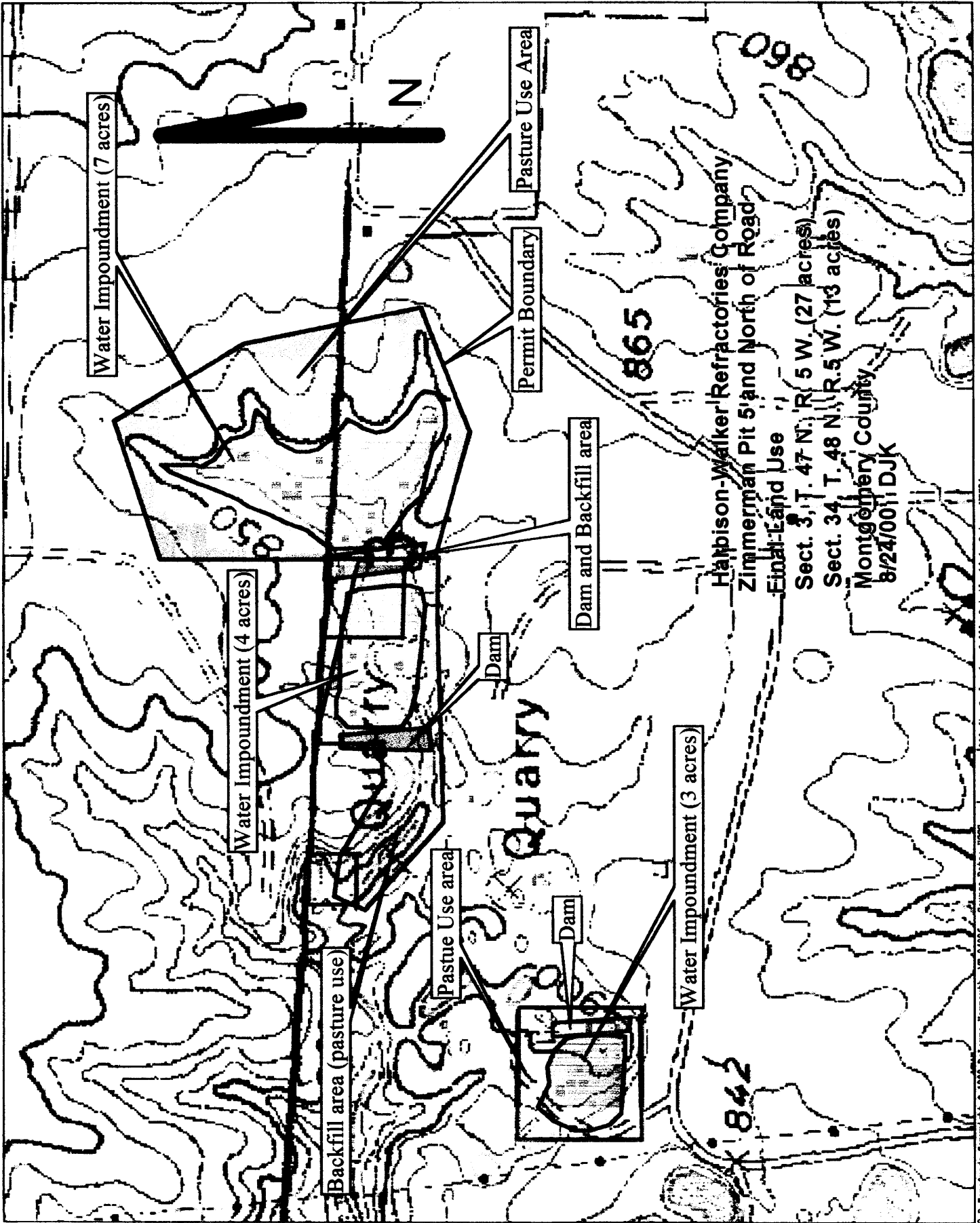
Mineral Instrument

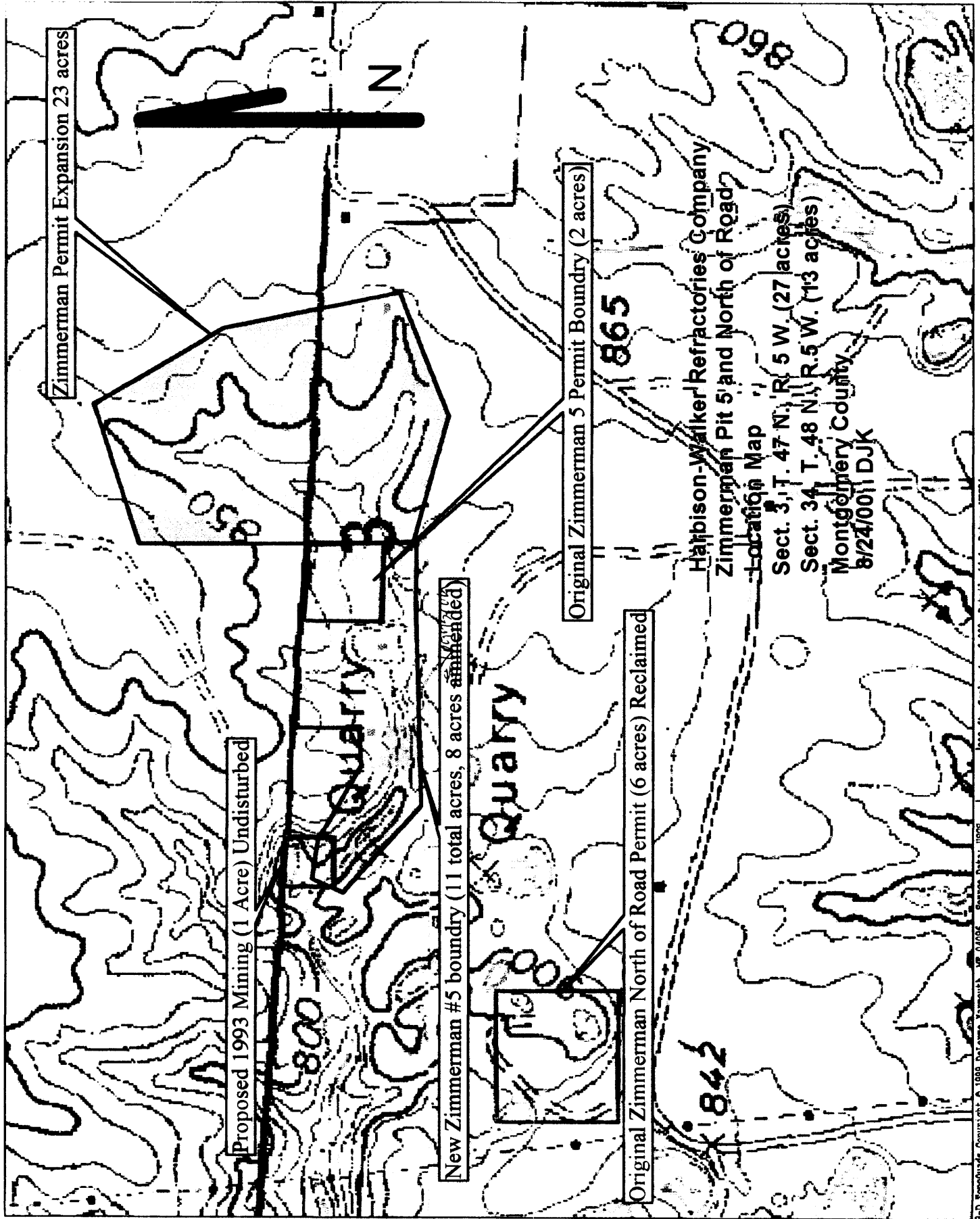
Mineral Lease to Harbison-Walker Refractories
Dated 8/1/74

Brenda and Sidney Devlin
811 Brenda Street
New Florence, MO 63363

Roger Johnson
409 S. Adams Street
New Florence, MO 63363







Zimmerman Permit Expansion 23 acres

Proposed 1993 Mining (1 Acre) Undisturbed

New Zimmerman #5 boundary (11 total acres, 8 acres amended)

Original Zimmerman 5 Permit Boundary (2 acres)

Original Zimmerman North of Road Permit (6 acres) Reclaimed

Harpison-Walker Refractories Company

Zimmerman Pit 5 and North of Road

Location Map

Sect. 3, T. 47 N., R. 5 W. (27 acres)

Sect. 34, T. 48 N., R. 5 W. (13 acres)

Montgomery County

8/24/00 DJK

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LAND RECLAMATION COMMISSION



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PERMIT APPLICATION FOR INDUSTRIAL MINERAL MINES

AUG 30 2000

TYPE OF PLAN (CHECK ONE)

☐ SHORT TERM, FOR ONE PERMIT YEAR

☒ LONG TERM, FOR PERIOD THROUGH DATE: 12/31/2050

MISSOURI LAND
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION, AND TOPOGRAPHY

The 23 acre expansion area is currently being used for timber and livestock lands. The pit occurs in a draw to the east of the old pit. The area to the west of the proposed expansion was mined prior to 1992 and is currently impounding water. Slopes around the impoundment are steep and need to be reclaimed. All currently disturbed areas are pre-1992 and no top soil was salvaged.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

12 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

Topsoil on the expansion area to the east will be removed using rubber-tired scrapers and bulldozers as conditions warrant. The topsoil will be stored near the pit within the permit area. We will remove the first 12 inches of surficial material from all areas to be disturbed before mining begins, in accordance with proper topsoil handling procedures. No topsoil was saved from Pre-92 mined areas.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

Surficial material will be stored in gently sloping piles and will be seeded with annual grasses, if necessary, to control any erosion. Best management practices will be used in the handling and storage of topsoil as necessary.

B. SPOIL

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

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MISSOURI LAND
RECLAMATION COMMISSION

Spoil will be removed using bull-dozers and rubber tired scrapers. The spoil will be used as backfill to the west of the new clay pit to back-fill a property line and to construct a dam

C. ACID MATERIALS

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

None

PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

see site maps

YES NO

☐☒

Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?

☐☒

Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of way of and public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus on an one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)

☒☐

Will any excavation start at or within fifty feet (50') of any property line?
(NOTE: If the answer is "yes", a safety barrier may be needed.)

RECLAMATION PLAN - 10 CSR 40-10.02 (D)2.

AUG 3 2000

A. REVEGETATION (Attach additional sheets, if needed)

REVEGETATION MIX #1	PURPOSE OR LAND USE	MISSOURI LAND RECLAMATION COMMISSION	SEEDING OR PLANT TIME
Mixture #1	* Development Pasture		Fall or Spring

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

9-25-00
MA

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Tall Fescue Red Clover Wheat or Oats	25 5 30		

VEGETATION MIX #2	PURPOSE OR LAND USE	B. SEEDING OR PLANTING TIME
Mixture #2	* Development Pasture	Spring or Fall

DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING

During the first spring or fall after finish grading the seed mix will be either drilled in with a no-till drill or broadcast. Re-seeding will be done as needed to achieve a suitable stand.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients. Mulch will be applied to all slopes exceeding 5:1.

SEEDING SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
Orchard Grass Korean Lespedeza Wheat or Oats * Serecea Lespedeza (On Slopes)	10 6 30 20		

9-25-00
MA

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

* items were changed or deleted as per conversation with Mr David Keller on 9-25-00.

B. GRADING

DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

Areas backfilled with spoil from the site will be graded to match the surrounding topography and covered with topsoil. Two impoundments will be left by the final phase of mining. The impoundments will be graded to traversable slopes above the anticipated water level using bulldozers. Terraces and diversion ditches will be constructed as necessary to control erosion.

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MISSOURI LAND
RECLAMATION COMMISSION

C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES

GRADING

Grading will be done as mining advances. The spoil will either be backfilled in previously mined areas, into storage piles, or into dams to create the impoundments. Final grading of all disturbed areas will be completed within one year after mining is completed

REPLACEMENT OF TOPSOIL

Topsoil will be spread using rubber tired scrapers and bulldozers within one year after grading is complete.

REVEGETATION

The site will be seeded in the fall or spring after topsoil replacement.

AVERAGE DEPTH OF REPLACEMENT TOPSOIL (INCHES)

12

D USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation:

ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

0

Agricultural (pasture, cropland, and horticultural)

27

Development (residential, industrial, and recreational)

0

Water impoundments (for wildlife, agricultural, or development)

13


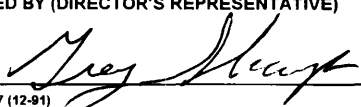
RECEIVED

AUG 30 2000

By my signature, I attest to the following:

MISSOURI LAND
RECLAMATION COMMISSION

1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intends) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

SIGNATURE OF APPLICANT 		TITLE <i>Gredogios</i>	
NOTARY PUBLIC EMBOSSER SEAL	STATE <i>Missouri</i>		COUNTY (OR CITY OF ST. LOUIS) <i>Callaway</i>
	SUBSCRIBED AND SWORN BEFORE ME, THIS <i>28</i> DAY OF <i>August</i> 20 <i>00</i>		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Karen S. Luther</i>	MY COMMISSION EXPIRES <i>7/18/2003</i>	KAREN S. LUTHER NOTARY PUBLIC STATE OF MISSOURI CALLAWAY COUNTY MY COMMISSION EXPIRES JULY 18, 2003
	NOTARY PUBLIC NAME (TYPED OR PRINTED) <i>Karen S. Luther</i>		
APPROVED BY (DIRECTOR'S REPRESENTATIVE) 		DATE APPROVED <i>10-31-00</i>	PERMIT NUMBER <i>146</i>

RECEIVED

AUG 28 1992

Montgomery

MISSOURI LAND

ZIMMERMAN #5 (N OF ROAD)

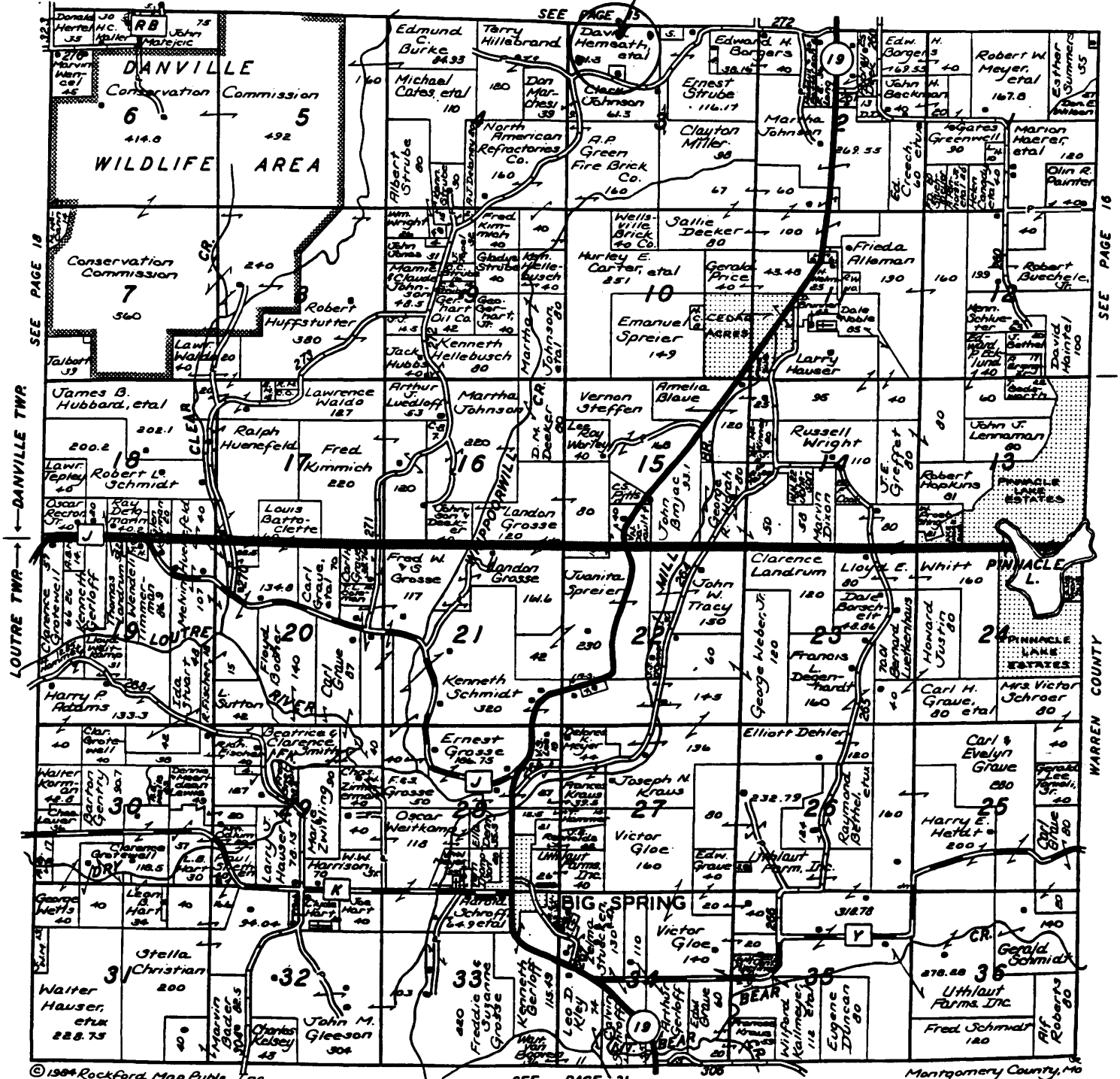
SOUTHEAST
PART

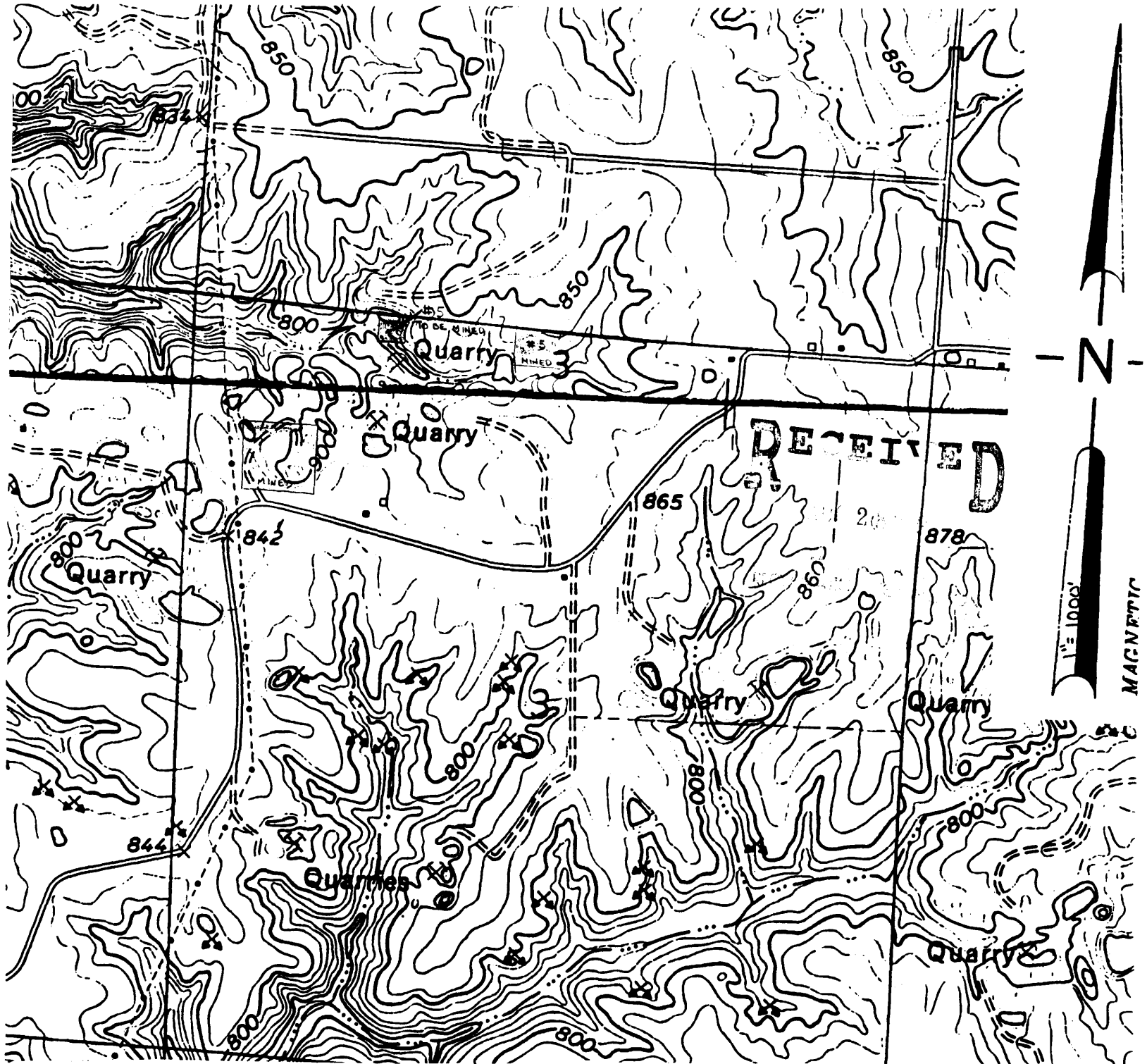
DANVILLE

RECREATION COMMISSION

LOUTRE

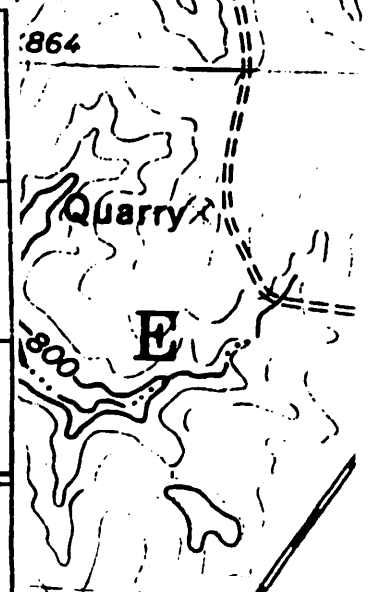
T.47N.-R.5W.





HARBISON-WALKER REFRACTORIES
Division of INDRESCO Inc.
P.O. Box 430, Fulton, Missouri 65251

PROPERTY:	ZIMMERMAN #5 AND (NORTH OF ROAD)
PROJECT:	MISSOURI PERMIT
LOCATION:	MONTECALM COUNTY



9. & 10A. The discrepancy between last year's permit and this year's permit was caused by the fact that we have two pits on different sites both named Zimmerman #1. The following pits listed on last year's permit are on the same site, Zimmerman #1 (South of Road).

<u>PIT</u>	<u>ACRES</u>	<u>PERMIT NO.</u>
Zimmerman #1	5	74-146-A
Zimmerman #1	5	75-146

The following pits are on the Zimmerman #5 (North of Road) site.

<u>PIT</u>	<u>ACRES</u>	<u>PERMIT NO.</u>
Zimmerman	2	77-146
Zimmerman #1	3	79-146
Zimmerman #5	4	81-146-A

I regret the confusion this may have caused.

10. B. A revised page 4 of 5 is enclosed. We will replace 12 inches of topsoil.
11. A. I changed the land use on two acres of this site to wildlife. An additional page 3 of 5 and a revised page 4 of 5 are enclosed.
- B. The revised page 4 of 5 from Question 11A, also has the topsoil replacement depth changed to 12 inches.
12. The reclaimed land use on one acre of this site has been changed to wildlife. An additional page 3 of 5 and a revised page 4 of 5 is enclosed.
13. Yes, a variance has been applied for on this site. A revised page 4 of 5 is enclosed.
14. We have not applied for a variance on the Stockton #1 site. The pit is graded to traversable slopes and has been seeded. The water level has to raise and additional seeding will be required before this site can be released. Grading of gullies and installation of terraces may also be required.
15. Yes, a variance has been applied for on this site. A revised page 4 of 5 is enclosed.
16. A. See response to Question 4.
- B. A revised page 4 of 5 is enclosed. We always take a soil test to determine the proper treatment.